WASHITA PROJECT, OKLAHOMA

HEARING

BEFORE THE

SUBCOMMITTEE ON IRRIGATION AND RECLAMATION

OF THE

COMMITTEE ON INTERIOR AND INSULAR AFFAIRS UNITED STATES SENATE

EIGHTY-FOURTH CONGRESS

FIRST SESSION

ON

S. 180

A BILL TO AUTHORIZE THE SECRETARY OF THE INTERIOR TO CONSTRUCT, OPERATE, AND MAINTAIN THE WASHITA RIVER BASIN RECLAMATION PROJECT, OKLAHOMA

APRIL 25, 1955

Printed for the use of the Committee on Interior and Insular Affairs

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CONTENTS

	Page
Text of S. 180	1
Reports:	
Bureau of the Budget	4
Department of the Interior	2
Statement of—	
Bennett, N. B., Jr., Chief, Project Development Division, Bureau of Reclamation	16
Bradley, James, engineer, Office of the Assistant Secretary of the Interior, Water and Power Service, Department of the Interior	10
Cary, L. G., Washita Basin Improvement Association, Chickasha, Okla	32
Conel, Albert, chairman, Washita Basin Improvement Association, Anadarko, Okla	27
Engleman, Charles, Washita Basin Improvement Association, Clinton, Okla	44
Hulin, Houston, Washita Basin Improvement Association, Cordell, Okla	41
Husky, Ira C., director, division of water resources, Oklahoma Planning and Resources Board	50
Jennings, Robert W., regional director, Bureo of Reclamation, Amarillo ,Tex	17
Kerr, Hon. Robert S., United States Senator from the State of Oklahoma	5
Mann, Eugene C., secretary-manager, Hobart Chamber of Commerce, Gobart, Okla	39
Monroney, Hon. Mike, United States Senator from the State of Oklahoma	45
Woodall, Parker, of Verden, Okla., representing farmers in the Washita Valley, Okla	35
Additional information:	
Cost allocations	21
Cost and repayment data	25
Construction costs at 1951 and 1955 price levels	25
Letters:	
Crane, B. E., Bessie, Okla., to H. B. Southwood, Bureau of Reclamation, Oklahoma City, Okla., February 12, 1955	30
Karns, E. E., general manager, Western Farmers Electric Cooperative, to Albert Conel, chairman, Washita Basin Improvement Association, Anadarko, Okla., February 9, 1955	31
Nichols, Hon. Roy, mayor of Rocky, Okla., to H. B. Southwood, Bureau of Reclamation, Oklahoma City, Okla., February 12, 1955	31
Without allocations to specific irrigation features, fish and wildlife, and recreation as contained in House Document 219	21

WASHITA PROJECT, OKLAHOMA

MONDAY, APRIL 25, 1955

UNITED STATES SENATE,
SUBCOMMITTEE ON IRRIGATION AND RECLAMATION
OF THE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS,
Washington, D. C.

The subcommittee met, pursuant to call, in room 224, Senate Office Building, Senator Clinton P. Anderson (chairman of the subcommittee) presiding.

Present: Senator Clinton P. Anderson, New Mexico.

Also present: Stewart French, general counsel; Goodrich Lineweaver, staff member for reclamation; Elmer Nelson, consulting engineer; N. D. McSherry, assistant chief clerk.

Senator ANDERSON. The subcommittee will come to order.

Our business this morning is Senate bill 180, introduced by Senator Kerr, for himself and Senator Moroney, to authorize the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project in Oklahoma.

We will first list the bill in the record, and then we will have the report of the Secretary of the Interior prepared by former Gov. Fred Aandahl, as Assistant Secretary of the Interior, addressed to Chairman Murray, on April 22, covering this bill, recommending that the bill after certain adjustments be passed by the committee.

(S. 180 is as follows:)

[S. 180, 84th Cong., 1st sess.]

A BILL To authorize the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project, Oklahoma

Be it enacted by the Senate and House of Representatives of the United States of America in Congres assembled, That the Secretary of the Interior is authorized to construct, operate, and maintain the Washita River Basin reclamation project, Oklahoma, in accordance with the Federal reclamation laws (Act of June 17, 1902, and Acts amendatory thereof or supplementary thereto), except so far as those laws are inconsistent with this Act, for the principal purposes of storing, regulating, and furnishing water for municipal, domestic, and industrial use, and, for the irrigation of approximately twenty-six thousand acres of land and of controlling floods and, as incidents to the foregoing, for the additional purposes of regulating the flow of the Washita River, providing for the preservation and propagation of fish and wildlife, and of enhancing recreational opportunities. The Washita project shall consist of the following principal works: A reservoir at or near the Foss site on the main stem of the Washita River; a reservoir at or near the Fort Cobb site on Pond (Cobb) Creek; and canals, pipelines, and other conduits for furnishing water for municipal, domestic, and industrial use, and for irrigation.

SEC. 2. In constructing, operating, and maintaining the Washita project, the Secretary shall allocate proper costs thereof under the following conditions:

(a) Allocations to flood control, recreation, and the preservation and propagation of fish and wildlife shall be nonreturnable.

(b) Allocations to municipal water supply, including domestic, manufacturing, and industrial uses, shall be repayable through contracts with municipal corporations. Such contracts shall be precedent to the commencement of construction of any project unit affecting the individual municipalities, and shall provide for repayment of construction costs in not to exceed fifty years from the dates water is first delivered, and payments of construction costs shall include interest on unamortized balances at a rate equal to the average rate paid by the United States on long-term loans outstanding during the period of the construction, except that estimates may be used for minor costs not incurred prior to delivery of water: *Provided*, That such contracts shall provide that annual municipal repayments shall continue at the same rates until the costs of Foss and Fort Cobb Reservoirs allocated to irrigation are fully repaid: *Provided further*, That if irrigation works are constructed, as hereinafter provided, said annual repayment rates shall continue so long as the costs of irrigation works are unpaid.

(c) The authorization for construction of the irrigation works, exclusive of Foss and Fort Cobb Reservoirs, shall be limited, as to each reservoir, to a period of ten years from the commencement of the delivery of municipal water from the reservoir on which the irrigation unit is dependent. Contracts with irrigation water users shall provide for repayment in accordance with reclamation laws (Act of June 17, 1902; 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), excepting section 9 (e) of the Reclamation Project Act of 1939, within a period of fifty-five years as to each irrigation unit, from the date water is first delivered thereto.

SEC. 3. Construction of the Washita project herein authorized may be undertaken in such units or stages as in the opinion of the Secretary best serves the project requirements and the relative needs for water of the several prospective users. Repayment contracts negotiated in connection with each unit or stage of construction shall be subject to the terms and conditions of section 2 of this Act.

SEC. 4. The Secretary may, upon conclusion of a suitable agreement with any qualified agency of the State of Oklahoma or a political subdivision thereof for assumption of the administration, operation, and maintenance thereof at the earliest practicable date, construct or permit the construction of public park and recreational facilities on lands owned by the United States adjacent to the reservoirs of the Washita project, when such use is determined by the Secretary not to be contrary to the public interest, all under such rules and regulations as the Secretary may prescribe. No recreational use of any area to which this section applies shall be permitted which is inconsistent with the laws of the State of Oklahoma for the protection of fish and game. The costs of constructing, operating, and maintaining the facilities authorized by this section shall not be charged to or become a part of the costs of the Washita River Basin project.

SEC. 5. Expenditures for Foss and Fort Cobb Reservoirs may be made without regard to the soil survey and land classification requirements of the Interior Department Appropriation Act, 1954 (43 U. S. C. 390a).

SEC. 6. There are hereby authorized to be appropriated out of any moneys in the Treasury not otherwise appropriated, $37,429,000 to carry out the purposes of this Act.

Senator ANDERSON. The report of Secretary Aandahl reads as follows:

APRIL 22, 1955.

MY DEAR SENATOR MURRAY: You have requested a report from this Department on S. 180, a bill to authorize the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project, Oklahoma.

On July 29, 1953, we sent to the President of the Senate and the Speaker of the House, in accordance with the provisions of the Reclamation Project Act of 1939, our report on a plan of improvement for the Washita River Subbasin, Red River Basin, Okla. and Tex. Attached to our letter was a letter from the Bureau of the Budget dated July 28, 1953, advising that there would be no objection to the submission of that report to the Congress "or to authorization of the project if the legislation conforms to your modified report and the conditions outlined above." The report, including the Bureau of the Budget's letter to which reference has just been made, was printed as House Document 219, 83d Congress. We request that this planning report, subject to the observations which follow in this letter, be considered our report on S. 180 since this bill is

generally designed to carry out the plan of development recommended therein.

Since the time that that report was prepared, it has been necessary to revise the cost estimates and cost allocations contained in it. It is now estimated that the cost of constructing the Fort Cobb and Foss Reservoirs and the additional and incidental works for supplying municipal water recommended by us would be approximately $31,750,000 in terms of January 1955 price levels. If the additional irrigation works proposed for authorization in S. 180 are also constructed, the total initial cost of the project would be increased to approximately $40 million in terms of the same price levels. Neither of these figures includes amounts for specific facilities for recreation or for fish and wildlife.

Allocation of the estimated project construction costs of $31,750,000 on the basis of now established cost allocation procedures and without any allocation to fish and wildlife or to recreation results in the following estimates which are compared to those presented with our letter of July 29, 1953:

Purpose	1955 adjusted tentative allocation	1953 (H. Doc. 219) tentative allocation
Municipal water supply	$15,200,000	$10,370,000
Irrigation	7,075,000	3,410,000
Flood control	9,475,000	15,417,000
Total	31,750,000	29,197,000

S. 180 provides for allocations to fish and wildlife and recreation. Tentative allocations, made in accordance with these provisions and covering specific irrigation costs, would be as follows:

Purpose	1955 adjusted tentative allocation	1953 (H. Doc. 219) tentative allocation
Municipal water supply	$15,000,000	$9,981,000
Irrigation	15,175,000	10,643,000
Flood control	9,475,000	15,417,000
Fish and wildlife	400,000	839,000
Recreation	550,000	549,000
Total	40,600,000	37,429,000

The adjusted allocations would result in a substantially increased cost of municipal and industrial water over the cost presented in House Document 219. On the basis of the earlier allocations the municipal and industrial water cost, including interest at 2½ percent, would be about 11.5 cents per 1,000 gallons of raw water for the gravity systems. On the basis of the later allocations that cost would be about 17 cents. We have been advised by the Washita Basin Improvment Association representing the municipalities and agricultural and industrial interests of the area that somewhere between 13 cents to 15 cents per 1,000 gallons of raw water is the most which we could expect to receive from the municipalities involved. This is less than the approximately 17 cents per 1,000 gallons which would be the required rate under the adjusted allocation. S. 180 would require a contract covering full repayment of costs allocated to municipal and industrial use prior to commencement of construction.

It is our recommendation that S. 180, after such adjustment by your committee as is called for by consideration of the relationship of the stated repayment figures to a fair sharing of the joint costs of the project, by this Department's planning report and the Bureau of the Budget's letter of July 28, 1953, and by the suggestions made in the following paragraphs, be enacted.

In addition to the basic policy amendments needed to conform the bills to the two documents just mentioned, there are several other amendments which will improve the workability of whatever bill may ultimately be enacted. These are:

(1) An amendment to section 2 (b) to provide a final date (day the date of enactment of the act) as of which the interest rate on the municipal water allocation is to be determined. The present language of the bill requires contracts to be negotiated prior to construction but leaves the interest rate to be determined

in terms of later conditions. It would be much better, we believe, for the rate to be known at the time negotiations are undertaken. It would also be better, we believe, for the interest formula to be stated in terms of the rate paid by the United States on its outstanding marketable long-term loans rather than simply, as the bill has it, on its outstanding long-term loans. Language such as that which was employed in section 2 (c) of the act of August 20, 1954 (Public Law 606, 83d Cong.) authorizing the construction of the Talent division of the Rogue River reclamation project will serve both of these purposes.

(2) An amendment to make clear that the language of section 2 (c) is not intended to preclude the temporary furnishing of irrigation water, under contracts appropriate for that purpose, from Foss and Fort Cobb Reservoirs with or without the construction of specific irrigation works and to permit, as general reclamation law permits, the use of a development period for irrigation.

(3) An amendment, if your committee determines to include an authorization of irrigation works, which will permit (as various acts of Congress in recent years have permitted) the adoption of a variable payment plan for the irrigators and adjustment of the actual period of payment in accordance with the operation of such a formula. The language of section 2 (b) of the Talent Division Authorization Act will again illustrate what is called for to accomplish this object.

(4) An amendment which adjusts the cost estimate contained in section 6 of the bill to the works which the committee ultimately determines shall be included within the authorization, which makes it clear that the amount specified is for construction only and is not inclusive of operation and maintenance, and which permits (as a number of previous acts of Congress have permitted) an adjustment of this amount in the light of construction-cost changes as shown by engineering indexes. Such an amendment designed to fit this Department's recommendations with respect to the works to be constructed would be read along these lines:

"There is hereby authorized to be appropriated for construction of the works authorized to be constructed by section 1 of this act the sum of $31,750,000 plus an additional amount, if any, as may be required by reason of changes in the costs of construction of the types involved in the Washita River Basin project as shown by engineering indexes. There are also authorized to be appropriated such sums as may be required for the operation and maintenance of said works."

We are informed that there is a particular urgency for your committee to have this report and that hearings on the Washita River Basin reclamation project will commence April 25. In view thereof, this report is being submitted to the committee prior to clearance through the Bureau of the Budget and we are not in a position to advise you concerning its relation to the program of the President.

That is signed "Fred G. Aandahl, Assistant Secretary of the Interior."

As the report from the Department of the Interior indicates, the Bureau of the Budget was not able to clear the report in time, but probably a statement from the Bureau of the Budget will be received today, and if so, will be inserted in the record at this point.

(The report referred to follows:)

EXECUTIVE OFFICE OF THE PRESIDENT, BUREAU OF THE BUDGET,
Washington 25, D. C., March 8, 1955.

Hon. JAMES E. MURRAY,
Chairman, Committee on Interior and Insular Affairs,
United States Senate, Washington 25, D. C.

MY DEAR MR. CHAIRMAN: This will acknowledge Mr. Stewart French's letter of January 17, 1955, requesting the views of the Bureau of the Budget on S. 180, a bill to authorize the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project, Oklahoma.

The present status of the Department of the Interior plan for this project and our views thereon are contained in letters of July 28, 1953, to the Secretary of the Interior, and July 29, 1953, to the committee, copies of which are included in Senate Report No. 1315, 83d Congress.

While the views of this Bureau and the Department's modified report, submitted to us on July 28, 1953, are substantially in accord they differ from S. 180 which makes provision for the propagation of fish and wildlife, enhancement of recreational opportunities, and the irrigation of approximately 26,000 acres.

These features were not recommended by the Bureau in its letter of July 28, 1953, or by the Department in its modified report. The Bureau also stated in the letter to the Secretary that construction of the project, if authorized, should be contingent upon a legislative provision requiring the State of Oklahoma, together with local organizations, to assume financial responsibility for repayment to the Federal Government of the municipal, industrial, and domestic water-supply investment that may be found to be beyond the ability of the water users to repay.

The position of the Bureau of the Budget regarding the above matters has not changed and reasons therefor, as well as others relating to agreement with the Corps of Engineers on allocation of costs to flood control and limitation of repayment periods on irrigation investments to 50 years, are fully expressed in letters of July 8, 1952, to the committee on S. 3133, 82d Congress, 2d session, and December 30, 1953, to the Secretary of the Interior. These latter letters are printed in House Document No. 219, 83d Congress.

Accordingly, enactment of S. 180 would be without objection only if it is amended to conform to the Secretary's modified project report of July 28, 1953, and the conditions set forth in the above-mentioned letters.

Sincerely yours,

DONALD R. BELCHER, *Assistant Director.*

Senator Kerr, will you come forward, please, and also Senator Monroney.

STATEMENT OF HON. ROBERT S. KERR, A UNITED STATES SENATOR FROM THE STATE OF OKLAHOMA

Senator KERR. Thank you, Mr. Chairman.

Mr. Chairman, first for the good people of Oklahoma and my colleague, Senator Monroney and myself, we want to thank you and this committee for setting this matter for hearing and for putting it into a schedule that we know is tremendously crowded.

Senator ANDERSON. We are very happy to try to clear up 3 or 4 of these projects early in the session. The upper Colorado has been passed by the Senate. The Fryingpan-Arkansas project will be passed on by the full committee tomorrow, and we are very anxious to see that some of these meritorious projects for Western needs of water particularly in this drought year get priority attention. We would be happy to have your statement on the bill.

Senator KERR. The Washita project bill, S. 180, was introduced by my colleague, Senator Monroney, and me, on January 10, 1955. Congressman Victor Wickersham has introduced the bill in the House.

The bill, as introduced, authorizes the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project, consisting of the Foss and Cobb Creek Reservoirs, and appurtenances to provide a municipal, domestic, and industrial water supply for 11 cities and towns in western Oklahoma. It also provides for the irrigation of 25,000 acres of Washita bottom lands, as well as providing flood control and river regulation. Incidental to the construction of the project would be improved fish and wildlife resources and recreational developments.

The Foss Reservoir site is on the Washita River 12 miles west of Clinton. The reservoir would have a storage capacity of 302,000 acre-feet: 177,000 acre-feet would be allocated to flood control; 50,000 acre-feet would be jointly allocated to municipal water supply and irrigation; 5,700 acre-feet would be for municipal use exclusively; and 75,000 acre-feet would be set aside for silt reserve.

62161—55——2

Other facilities related to the Foss Reservoir are pipelines from the reservoir east to Clinton and southwest to Elk City, Cordell, and Hobart. These pipelines would serve Clinton, Bessie, Cordell, Rocky, Sentinel, Hobart, Elk City, and Canute. Nine thousand four hundred and forty acres would be irrigated from the Foss project in the vicinity of Clinton.

The Fort Cobb Reservoir is on Cobb Creek, a tributary of the Washita, 16 miles northewest of Anadarko. The storage capacity of the Fort Cobb Reservoir is 9,500 acre-feet which would be allocated as follows: 62,500 acre-feet to flood control; 15,000 acre-feet jointly to municipal water supply and irrigation, of which at least 3,500 acre-feet would be for municipal use exclusively; and 15,000 acre-feet for silt reserve.

A pipeline would extend easterly from the Fort Cobb Reservoir to serve Anadarko, Verden, and Chickasha with municipal water supply. A diversion dam and canal for the irrigation of 9,000 acres near Anadarko would be a part of the project. Near Anadarko 16,260 acres would be served by coordinated releases from the Foss and Cobb Creek Reservoirs jointly.

The combined population of the 11 cities and towns to be served by the project is approximately 50,000 which has been reached since statehood in 1907. It is estimated that the population of these cities and towns will more than double in the next 50 years.

Irrigation benefits with the projects are estimated to be $750,000 annually, of which 52 percent would accrue to the project farmers and the remainder to others in the communities and to the State and the Nation. Repayment ability of the irrigators, after operation and maintenance charges, is estimated to be $66,032 annually, or $3,301,600 in 50 years. Irrigation costs beyond the ability of the irrigators to repay in 50 years could be retired by continuation of the combined irrigation and municipal water payments as at the end of the 50-year period for an additional 15 years, or less.

Last year a similar bill, introduced in both the Senate and the House, received the unanimous approval of the Senate Interior and Insular Affairs Committee and passed the Senate upon recommendation of that committee without a dissenting vote, on calendar call.

The Interior and Insular Affairs Committee of the House reported the bill to the House of Representatives, but there it failed passage in the rush of adjournment of the 83d Congress.

President Eisenhower, in his budget message last year, endorsed the project and in an unusual and unprecedented procedure, recommended a supplemental appropriation "to initiate construction of the Washita project, Oklahoma," when authorized by the Congress. Consequently, it is anticipated that the President's support of this project will be available in the present Congress.

The Secretary of the Interior, in reporting on S. 180 to the chairman of this committee, suggested four amendments to the bill:

(1) An amendment to section 2 (b) to provide a final date (say, the date of enactment of the act) as of which the interest rate on the municipal water allocation is to be determined. The present language of the bill requires contracts to be negotiated prior to construction but leaves the interest rate to be determined in terms of later

conditions. It would be much better, we believe, for the interest formula to be stated in terms of the rate paid by the United States on its outstanding marketable long-term loans rather than simply, as the bill has it, on its outstanding long-term loans. Language such as that which was employed in section 2 (c) of the act of August 20, 1954 (Public Law 606, 83d Cong.) authorizing construction of the Talent division of the Rogue River reclamation project will serve both of these purposes.

(2) An amendment to make clear that the language of section 2 (c) is not intended to preclude the temporary furnishing of irrigation water, under contracts appropriate for that purpose, from Foss and Fort Cobb Reservoirs with or without the construction of specific irrigation works and to permit, as general reclamation law permits, the use of a development period for irrigation.

(3) An amendment, if your committee determines to include an authorization for irrigation works, which will permit (as various acts of Congress in recent years have permitted) the adoption of a variable payment plan for the irrigators and adjustment of the actual period of payment in accordance with the operation of such a formula. The language of section 2 (b) of the Talent division authorization act will again illustrate what is called for to accomplish this object.

(4) An amendment which adjusts the cost estimate contained in section 6 of the bill to the works which the committee ultimately determines shall be included within the authorization, which makes it clear that the amount specified is for construction only and is not inclusive of operation and maintenance, and which permits (as a number of previous acts of Congress have permitted) an adjustment of this amount in the light of construction cost changes as shown by engineering indexes.

We have no objection to the incorporation of these amendments into the bill because we believe that they clarify the bill and make its authorization more explicit.

Senator ANDERSON. In other words, you are willing to bring the bill in line with what the Department of the Interior has recommended.

Senator KERR. As to the four amendments, yes.

They go into cost allocation which I do not believe is consistent with the position of this committee, and which I know is not consistent with the position of Congress, and which differs from their position last year, and which we will depend upon this committee to protect us on.

The Washita project is described in detail in House Document 219, 83d Congress, 1st session, and last year when the House and the Senate considered the bill, they did so on the cost allocations contained therein. It is recognized that the cost allocations were based upon 1951 prices and, therefore, must be escalated to the price level that will exist at the time the project is placed under construction.

We do hope, however, that this comimtte will provide language, either in the bill or the report, so that there can be no mistake that the Congress is authorizing the project on the basis of the cost allocations contained in House Document 219, and which are the allocations upon which the local interests have based their participation in the project.

The cost allocations as contained in House Document 219 are as follows:

1951 price level

Purpose	Foss project	Fort Cobb project	Total projects
Irrigation	$6,298,000	$4,345,000	$10,643,000
Municipal water supply	3,484,000	6,497,000	9,981,000
Flood control	11,270,000	4,147,000	15,417,000
Fish and wildlife	458,000	381,000	839,000
Recreation	230,500	318,500	549,000
Total	21,740,500	15,688,500	37,429,000

Price levels of 1955 would increase total cost to $40,600,000.

I want to call the committee's attention to a very significant fact. Public Works Committee on Rivers and Harbors had the Chief of Engineers and his staff before us in some hearings. They gave us a report on the 11-year history of the benefits of the flood control that has been developed in this country. The projects taken as a whole—that is, all the flood-control projects in this country—in the last 11 years have saved approximately 2⅔ times the total cost of the projects. The life of the projects is conservatively estimated at 50 years. The overall range cost-benefit ratio for all the flood-control projects in this country was estimated prior to authorization at about 3¼ to 1 benefits to cost for the 50-year period. In the 11-year average that those projects have been in operation, and that takes in all of them in the country, they have already had a benefit ratio of 2⅔ to 1 of the cost.

The engineers' estimate is that for the next 40 years the benefits will be as great or greater, and it is very easy to see that flood prevention in the future in the areas as they are more extensively developed will be greater than in the past 11 years. So that actually the benefits are going to exceed the cost not 3¼ to 1 but 10 to 15 times to 1.

In spite of that history, the budget department is seeking to compel or persuade this Congress to arbitrarily change the benefit element in the authorization estimates by saying that we will allocate a smaller amount of the cost to flood control in the future than we have in the past. The only result of that if carried out by the Congress would be that a great portion of the projects which Congress wants to authorize could not be authorized, because to the extent that we would reduce the benefits allocable to flood control, we would have to increase the benefits allocable to reimbursible features. Therein our position does not agree with the Department.

Senator ANDERSON. Let me ask this. The allocation for flood control is $15,417,000, and in the report of the Department of the Interior it is cut to $9,475,000 or a $6 million reduction. They added nearly $5 million to irrigation.

What does that do to the feasibility of those irrigation projects?

Senator KERR. It makes them unfeasible.

Senator ANDERSON. Is that in the way of reporting favorably on the project on the one hand, and turning it down on the other?

Senator KERR. Yes, sir. It would increase the cost per acre from $4.17 to $5.92. It would increase the water costs from 12.2 cents per thousand to the municipalities to 18.3 cents per thousand gallons.

Senator ANDERSON. That is not serious, however.

Senator KERR. It would eliminate the possibility of any of it going to industry.

Senator ANDERSON. I would think that 30 cents a thousand gallons would not be too high.

Senator KERR. The average cost of industrial water in this country is 7½ cents. That is raw water before treatment.

Senator ANDERSON. The average cost across the country, yes, but the average cost in our part of the country is not too low.

Sentaor KERR. I understand the city of Tulsa charges industry 12½ cents a thousand.

Senator ANDERSON. I think that is a more reasonable figure.

Senator KERR. They are working to secure a water supply that will let them reduce that at least to 10 cents, in order for them to be able to compete for industry. Oklahoma City's cost to industry is 10 cents a thousand.

So we are seeking authorization this year on the same figures that the Budget endorsed last year.

Senator ANDERSON. That is all I was trying to get to. It would appear from this that the Department of the Interior says this is all right. However, we will change the figures around to where it does not look all right. I can hardly believe that is their real purpose. I would think they would rather go ahead with the figures that they authorized last year.

Senator KERR. The thing about it is in my judgment Interior has arrived at their new conclusion not on the basis of history and not on the basis of their own research, but on the basis of a directive from the Budget Bureau.

Senator ANDERSON. There is nothing that has happened in the weather in the last year or two that would reduce in any way your enthusiasm for this project?

Senator KERR. The weather has been such as to emphasize and dramatize the necessity. One of the witnesses will show the chairman some pictures of the duststorm in Oklahoma.

Senator ANDERSON. I have to go only to my own farm to see the duststorm.

Senator KERR. I am of the opinion that the prevailing winds were enough south of west to where the chairman and I would be compelled to conclude that the dust was coming from Texas, and not from New Mexico.

Senator ANDERSON. We are making our contribution to dust somewhere.

Senator KERR. I want to tell you that it is fierce, and the life of these communities and the life of this area is dependent upon these projects.

Senator ANDERSON. Putting water on a few thousand acres of ground would be of some assistance in the control of dust and duststorms, would it not?

Senator KERR. Yes, sir.

Senator ANDERSON. It is a very valuable part of conservation work, is it not?

Senator KERR. Yes, sir. These projects actually could be justified on their flood-control features alone, Mr. Chairman. I think if questioned closely, Interior would be compelled to admit it. But these

cities out there have entered into contracts to pay not only the $9,891,000 for municipal water, but this bill has a provision whereby after they have paid their part of this out, they will continue to pay until the irrigation part is paid out.

Senator ANDERSON. These contracts are already made on the basis outlined in House Document 219.

Senator KERR. Yes, sir.

Senator ANDERSON. So if we tried to change the basis we would complicate what has already been done and render useless what has already been done.

Senator KERR. That is right. The contracts have not been formalized but the agreements have been arrived at.

Senator ANDERSON. With the communities.

Senator KERR. Yes. In addition to the provisions in the bill for irrigation, flood control, and municipal water supply, provision is made for the Secretary of the Interior to enter into contracts with the State of Oklahoma for the construction of public parks and recreational facilities on lands adjacent to the reservoir project similar to the projects now in operation or under construction by the Oklahoma Planning and Resources Board at Fort Gibson, Tenkiller Ferry, and Texoma Reservoirs.

Last year the committees of Congress, in considering the bill, were impressed by the park program of the State of Oklahoma, and urged the cooperation between the States and the Federal Government in recreational developments.

I hope, Mr. Chairman, that this committee can report the bill at an early date in order that we may not run into the same situation as we did last year when the House did not have time to take final action on this bill.

I am very thankful to the chairman for his courtesy, and I know he is well aware of the value of these projects.

Senator ANDERSON. Thank you very much.

Senator KERR. Thank you very much, Mr. Chairman.

Senator ANDERSON. Senator Monroney?

Senator MONRONEY. I would like to testify a little later in the hearing, Mr. Chairman, as my statement is being typed now.

Senator ANDERSON. Mr. Bradley.

STATEMENT OF JAMES BRADLEY, ENGINEER, OFFICE OF ASSISTANT SECRETARY OF INTERIOR, DEPARTMENT OF THE INTERIOR

Mr. BRADLEY. Thank you, Mr. Chairman.

Senator ANDERSON. Would you state your name for the record, and the office for which you are testifying?

Mr. BRADLEY. My name is James Bradley. I am an engineer. I am with the Assistant Secretary of the Interior—Water and Power Development.

Senator ANDERSON. Go right ahead.

Mr. BRADLEY. Mr. Chairman, may I make a brief general statement on the subject of cost allocation.

A working agreement with the Army engineers and Federal Power Commission and the Department of the Interior on cost allocation was reached about a year ago, in March of 1954. Copies of this agree-

ment were sent to our House and Senate committees, both legislative and appropriations, in April of 1954.

The method that we favor is the so-called separable costs-remaining benefits method, which is very similar to the so-called alternative justifiable expenditure method, which, incidentally, was used by the TVA and was subject to a favorable review by the Federal Power Commission some years ago.

Briefly, Mr. Chairman, the allocation procedure is simply this. There are assigned those costs which are known to be incurred for a specific purpose to that purpose. For example, a powerplant would be assigned immediately to power, and irrigation canals would be allocated immediately to irrigation. There is no question about that.

Next, the distribution of the remaining joint costs to the various purposes of the project is made in proportion to the lower of two factors. Normally, here we are talking about distribution of the reservoir costs. The two factors that are used for this proportionality are the lesser of the alternative costs of producing the services for that purpose, or the benefits, as they are called. In short, the value that that purpose or service has when it is produced.

Senator ANDERSON. I think you better go back and give me the names of these two methods.

Mr. BRADLEY. Yes, sir. The first one is the separable costs-remaining benefits method. The other one I referred to, that is very similar, is the alternative justifiable expenditure method. I would be glad, Mr. Chairman, to explain the difference in the two. It is a highly technical difference. I do not think for your purposes here this morning it is material but that is up to you.

Senator ANDERSON. Not this morning, but it is going to be for the rest of my life so you might as well do it in writing. I do not have to have that today, but I want to know what we have done in this that is different from what we did in the Fryingpan-Arkansas. Which method did you use there?

Mr. BRADLEY. I am fairly certain that it was the second one, the so-called alternative justifiable expenditure method. It was surely one of the two.

Senator ANDERSON. What are you using in this one?

Mr. BRADLEY. On the Washita project we are using the separable costs-remaining benefits method.

Senator ANDERSON. Why not use the same one you used on the upper Colorado?

Mr. BRADLEY. You use No. 1 when you have the data that permits it. It is a refinement of the two.

Senator ANDERSON. You mean that the figure you have on the Washita project are more accurate than the one you had in the Fryingpan-Arkansas?

Mr. BRADLEY. I would say they are more detailed. We have to get into the technicality as to the difference between specific costs and so-called separable costs. That is the only difference in the two methods. If you have the information on separable costs, normally you would use it. If you do not have that information, you use the specific cost, but there is no material difference in the two methods.

Senator ANDERSON. What projects have you used the separable costs on other that this one in recent years?

Mr. BRADLEY. Mr. Chairman, I would have to supply that for the record. In trying to be responsive to your question, I would say that since March a year ago, all of the projects that I know of that have been recommended by the Secretary to the Congress have been on either of these two methods.

(The information referred to follows:)

Project	Transmitted to Congress	Cost-allocation method [1]
Fryingpan-Arkansas, Colo	June 9, 1953	AJE.
Santa Maria, Calif	July 20, 1953	SC–RB.
Washita, Okla	July 29, 1953	Residual.[2 3]
	Apr. 22, 1955	SC–RB.
Colorado River storage	Mar. 31, 1954	AJE.[2]
Chief Joseph Dam, Foster Creek division, Washington	Apr. 16, 1954	Single purpose.
Canton, Okla	June 10, 1954	Do.
Glendo, Wyo	Apr. 2, 1954	AJE and residual.[2]
Haystack Reservoir, Deschutes, Oreg	Aug. 6, 1954	Single purpose.
Talent, Oreg	June 11, 1954	SC–RB.
Michaud Flats, Idaho	July 23, 1954	Single purpose.

[1] AJE—alternative justifiable expenditure method. SC–RB—separable costs-remaining benefits.
[2] Transmittal letter contemplated review of allocation for conformance with standards for general application.
[3] Allocation to nonreimbursable functions is based on capitalized benefits.

Senator ANDERSON. Since March 1, 1954?

Mr. BRADLEY. Yes, sir.

Senator ANDERSON. Very well. I merely want an opportunity to study it. When we get into reclamation projects, and the first thing we have the Collbran formula, and the next day we have another formula. It is a little hard to understand sometimes.

(Discussion off the record.)

Mr. BRADLEY. May I proceed?

Senator ANDERSON. Yes.

Mr. BRADLEY. The principal question among different methods of cost allocation is whether the nonreimbursable functions, which are flood control and navigation, would be allocated the full capitalized value of the benefits, or would share equitably in the savings resulting from multiple-purpose construction.

In the adopted method, all purposes—flood control, power, irrigation, navigation, muncipal water—are treated alike. It was considered no more equitable to charge the entire cost of a dam to flood control, for example, than it would be to charge it to power or to irrigation.

Senator ANDERSON. I think this statement here on cost allocations apparently prepared by the Department will be satisfactory for my purposes.

Mr. BRADLEY. That is fine, sir. That is the agreement with the Army and the FPC.

Senator ANDERSON. Thank you.

Mr. BRADLEY. Shall I proceed, Mr. Chairman?

Senator ANDERSON. Yes.

Mr. BRADLEY. It is important to note that no purpose under this method is allocated more cost than its value warrants, based on our best estimates as to what those values are. We had the choice of using a method that would be based on purely physical terms, such as the proportionate use of the reservoir. If flood control used half

of it, and industrial and municipal water used half of it, one perfectly understandable and rational basis of allocating costs would have been to divide up the costs of the reservoir 50–50. However, in the Government's practice of developing these projects, we believe in the serving of as many purposes as possible without the project suffering any drag by reason of the addition of the given function to a project. That is the test. That means as long as an element of service, such as municipal water, can be added to a project, and the cost of that addition is no greater than the value you get out of that addition, it is a good thing for the Government to make the optimum development of that site. Therefore, sir, we have to introduce into the cost allocation principles the idea of value rather than simply the physical terms, for we might otherwise be allocating more on the basis of physical terms than the value of what we had added would warrant or support. We consider both the value and the alternative cost.

In regard to the application of these procedures to projects, the agreement has been applied primarily and uniformly to new proposals. While it is not intended to go back to all existing projects to rework the cost allocation, it is being applied in cases where cost allocation of an existing project becomes a significant part in some reevaluation for which the Department becomes responsible.

We have in mind no wholesale reviewing of the entire reclamation program, but rather as cases present themselves, the Secretary may be required to take a new stand or a new look at a sizable undertaking, such as the Central Valley Project. In the discussions we had with the State of California, it was necessary that he see what his position was as to allocation. There we had to make a restudy of the allocation factors and come up with some restatement or affirmation, as the case may be, of the allocation of cost.

As to the provisions of budget circular A–47, to which reference was made earlier, I believe, I think it is fair and necessary to say that circular A–47 does not in specific terms prescribe an allocation method, but rather states that the method should be such that each purpose would share equitably in the savings arising from multiple-purpose construction. The methods that we have agreed upon do conform to that statement of principle.

That is all I had to cover, Mr. Chairman, unless you have some questions.

Senator ANDERSON. If these dams were built only for flood control, have you any idea how much they would cost?

Mr. BRADLEY. I think some of the other departmental witnesses will have that information. I do not have it, sir. I was simply asked to try to be informative on our general practices in regard to cost allocation. I am sure the other witnesses have that information.

Senator ANDERSON. I also want to ask a few things with reference to the values that the Corps of Engineers might put on the flood-control storage and so forth. Should that go to another witness?

Mr. BRADLEY. Yes.

Senator ANDERSON. Thank you.

Mr. BRADLEY. Thank you, sir.

Senator ANDERSON. I think I will read this cost allocation into the record.

Costs of a multiple-purpose project shall be allocated among the purposes served in such a manner that each purpose will share equitably in the savings resulting from combining the purposes in a multiple-purpose development.

ACCEPTABLE METHODS

1. *Separable costs-remaining benefit method.*—This method is considered preferable for general application.

2. *Alternative justifiable expenditure method.*—This method differs from (1) only in employing specific costs of the various functions rather than their separable costs. It is acceptable where the necessary basic data to determine separable costs are not available and the time and expense required to obtain the data are not warranted.

3. *Use of facilities method.*—This method is acceptable where the use of facilities is clearly determinable on a comparable basis and where use of this method would be consistent with the basis of project formulation and authorization.

MAXIMUM ALLOCATION

Each purpose shall be allocated, in every case, at least its separable cost (the cost traceable to its inclusion in a multiple-purpose project). Limitations of basic data may occasionally require the use of specific cost (the cost of features identified solely with a single purpose) and other available data as constituting the best available basis for approximating separable costs.

LEGISLATIVE HISTORY

The legislative history of authorized projects shall be considered in the allocation of the cost. The authorizing act, committee reports, project justification documents, and similar sources disclose the nature of the proposal submitted to the Congress and of congressional action thereupon.

CONSIDERATION OF ECONOMIC COSTS

In applying any one of the above allocation methods, taxes in an amount equal to those which would be foregone as a result of Federal development of the power rather than the most likely alternative development shall be included as an economic cost when distributing costs among the project purposes for analysis of economic justification, but shall be subtracted from the costs thus distributed to power in order to obtain the allocation of project costs to power.

VALUE OF POWER

The value of power produced means the estimated market value which would be obtainable if it were to be sold on an open competitive basis, without restriction as to use or resale. The value of power shall be determined as the lower of two figures.

(1) The estimated actual cost of equivalent power from the most likely alternative source that would be expected to develop in the absence of the project, to meet the same power needs, with appropriate adjustment for transmission costs and losses and other technical factors.

(2) Estimated value of power to users. (Applicable where costs of alternative power would be prohibitive either for part or all of the power produced.)

The value of power, determined as indicated above, shall be used for computations of economic benefits in project justification and for the allocation of project costs. It will not be used to establish the level of power revenues, which are based on the amortization of project costs (Federal power investment) over a reasonable period of years.

PROJECT FEASIBILITY

Criteria of project feasibility shall be such that, insofar as can be determined in advance:

(1) Projects will be considered economically feasible when the value of power (as defined above) will at least equal the project costs allocated

to power, plus the amount of taxes which would be foregone as a result of Federal development of the power rather than the most likely alternative development.

(2) Projects will be financially feasible, i. e., they will have potential net revenues from power sales sufficient to reimburse the Federal Government for the Federal investment in power.

BRIEF DESCRIPTION OF METHODS OF COST ALLOCATION

The separable costs-remaining benefits method has the following steps:

1. The benefits of each purpose are estimated.
2. The alternate costs of single purpose projects to obtain the same benefits are estimated.
3. The separable cost of each purpose is estimated.
4. The separable cost of each purpose in the multiple-purpose project is deducted from the lesser of each purpose's benefits or alternate cost. The lesser figure is used since alternate cost is used in this method only if it represents a justifiable expenditure, that is, if it does not exceed the benefits.
5. From total cost of project deduct all separable costs to determine residual costs.
6. Residual costs, designated as joint costs in this method, are distributed in direct proportion to the remainders found in step 4.
7. To determine the cost allocated to each purpose, add the separable and distributed costs for each purpose, and, in the case of power, subtract from that sum the amount of taxes foregone which was used in computing power costs under steps 2 and 3 above.

The alternative justifiable expenditure method has the following steps:

1. The benefits of each purpose are estimated.
2. The alternate costs of single purpose projects to obtain the same benefits are estimated.
3. The specific cost of each purpose is determined.
4. The specific cost of each purpose in the multiple-purpose project is deducted from the lesser of that purpose's benefits or alternate cost. The lesser figure is used since alternate cost is used in this method only if it represents a justifiable expenditure, that is, if it does not exceed the benefits.
5. From total cost of project deduct all specific costs to determine joint costs.
6. Joint costs of the multiple purpose project are distributed among purposes in direct proportion to the remainders found in step 4.
7. Allocation of project cost is determined in the same manner as under the separable costs remaining benefits method.

The use of facilities method has the following steps:

1. The use which is made by each purpose of joint project facilities is estimated on some basis which is comparable for the purposes concerned, using such measures of use as those of flow, reservoir capacity, energy consumption, and others as may be applicable.
2. The separable cost of each purpose is estimated. (In cases of minor importance specific rather than separable costs may be used.)
3. From total cost of project deduct all separable costs to determine joint (residual) costs.
4. Joint costs of the multiple purpose project are distributed among purposes in proportion to the comparable measures of use of the joint facilities estimated in (1).
5. To determine the cost allocated to each purpose, add the separable and distributed costs for each purpose, and, in the case of power, subtract from that sum the amount of taxes foregone which was used in computing power cost under (2) above.

Mr. Bennett.

STATEMENT OF N. B. BENNETT, JR., CHIEF, PROJECT DEVELOPMENT DIVISION, BUREAU OF RECLAMATION

Mr. BENNETT. I might state that Assistant Secretary Aandahl had expected to be here this morning, but was called to an appropriation hearing. He did ask that I present his statement, which is quite short.

Senator ANDERSON. Very well.

Mr. BENNETT. If you like, I could read it very quickly.

Senator ANDERSON. Yes, sir.

Mr. BENNETT. We appreciate the opportunity of appearing before your subcommittee and presenting statements on the bill presently before you. S. 180 is a bill to authorize the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project, Oklahoma, and is identical to the bill which was passed by the Senate last year without objections.

This bill is generally designed to carry out a plan of development which was recommended in the Department's modified report on a plan of improvement for the Washita River Subbasin, Red River Basin, Oklahoma and Texas. Our planning report was transmitted to the Congress on July 29, 1953, in accordance with the provisions of the Reclamation Project Act of 1939. The planning report and covering document was printed as House Document 219, 83d Congress. By letter of July 28, 1953, the Director of the Bureau of the Budget advised that there would be no objection to submission of our revised planning report of July 1953 to the Congress or to the authorization of the project if the legislation conforms to our modified report and conditions outlined in his letter.

Since the time that the report was prepared, it has been necessary to revise cost estimates from the 1951 period shown in the report to present day levels and adjust allocations in accordance with Budget's letter of July 28, 1953. These adjustments would result in a substantial increased cost to irrigation and municipal and industrial water over those shown in House Document 219.

We have been advised by the Washita Basin Improvement Association representing the municipalities and agricultural and industrial interests of the area that somewhere between 13 cents to 15 cents per 1,000 gallons of raw water is the most which we could expect to receive from the municipalities involved. This is less than the approximately 17 cents per 1,000 gallons which would be required rate under the adjusted allocation and cost estimates. S. 180 would require a contract covering full repayment of cost allocated to municipal and industrial use prior to commencement of construction.

The details on the results of these revisions and effects on the municipal and industrial water costs and repayment will be presented by Regional Director Robert W. Jennings of the Bureau of Reclamation.

In addition to this you have Mr. Aandahl's report on the bill which goes into more detail.

Senator ANDERSON. Very well, Mr. Jennings.

STATEMENT OF ROBERT W. JENNINGS, REGIONAL DIRECTOR, BUREAU OF RECLAMATION, AMARILLO, TEX.

Mr. JENNINGS. Mr. Chairman, I have a prepared statement here. I noticed a good amount of this information has already been introduced and it would be repetitious for me to read this statement completely. Would it be permissible to brief this?

Senator ANDERSON. Yes, sir.

Mr. JENNINGS. I am Robert W. Jennings, regional director, in charge of operations for region 5 of the Bureau of Reclamation. My statement relates to the Washita Basin project in southwestern Oklahoma, which is described in detail in House Document 219, 83d Congress, 1st session, and which is proposed for authorization in House bill 310 and Senate bill 180. I will attempt to summarize as briefly as possible the background of the investigations; the pertinent physical and economic factors which have a bearing on the need for development of water resources in the Washita River Basin; the plan for development which is proposed for authorization; the costs of construction, operation, and maintenance of the propsed project works; and the benefits, both monetary and intangible, which may be expected to accrue as a result of project operation. Subsequent statements will define the interests and responsibilities of the State of Oklahoma in connection with the proposed development, and will present evidence of the needs and desires of the local interests who are concerned with and involved in the plan of development.

Investigations of the Washita River Basin were initially undertaken by the Bureau of Reclamation with the endorsement of the water resources division of the Oklahoma Planning and Resources Board, and have been directed toward formulation of a comprehensive plan for optimum utilization of the water and land resources of the basin. Reconnaissance studies were begun in January 1939, and were followed by detailed surveys and studies of potentialities which were shown to be most favorable on the basis of the preliminary studies. This work has been coordinated with the plans of the Corps of Engineers, the Department of Agriculture, and other agencies of the Department of the Interior; and the plan has been formulated in close cooperation with concerned agencies of the State of Oklahoma, and with the Washita Basin Improvement Association which represents those interests in the basin which would be served by the proposed project works. Results of the investigations and studies have been incorporated in House Document 219, 83d Congress, 1st session, published in 1953. Problems and needs which have become apparent subsequent to publication of House Document 219 have been studied and evaluated, and their possible effects on the proposed project plan are discussed later in this statement.

The Washita River heads at an elevation of about 3,000 feet above mean sea level near the eastern edge of the High Plains of Texas and flows in a general southeasterly course out of Texas, across southwestern Oklahoma, joining the main stream of the Red River at Denison Dam, at an elevation of a little more than 600 feet mean sea level. The river itself is about 650 miles in length and meanders within a basin which is about 270 miles long, and has a total area of a little

more than 8,000 square miles. A little more than 94 percent of the total area of the basin is situated in Oklahoma; the remaining small portion is in Texas. Except for the rough Arbuckle Mountains in the lower part of the basin between Davis and the upper limits of Lake Texhoma, the upland area of the basin is gently to moderately rolling. These uplands are used for general agriculture, with the more rolling parts used for grazing; while large portions of the more gently rolling terrain and even some of the steeper slopes are in cultivation. In general, the uplands are subject to extensive erosion due to inappropriate land use, nature of soils, climatic conditions, and other factors. Generally, the best farmlands in the basin are the alluvial flood plains and terraces in the valley of the main stream and along the lower reaches of the more important tributaries.

The climate of the Washita Basin is temperate. The summers are long and hot with maximum temperatures of as high as 120° Fahrenheit occurring at points in some years. The frost free period averages 197 days in the upper reaches of the basin and 233 days in its lower reaches. Precipitation averages about 23 inches annually in the uppermost part of the basin and almost 40 inches in the lower end. However, precipitation throughout the entire basin is highly erratic on both an annual and seasonal basis. Droughts are common and intense, but may be interrupted by short periods of very heavy rainfall which cause flooding and loss of property and life. In all, the Washita Basin is an area which is susceptible to unpredictable extremes of moisture and other climatic phenomena.

In the course of the investigation, problems and needs of the basin as they relate to land and water were determined. The most pressing need, particularly in the upper half of the basin, is water supply for municipal and industrial purposes. Present supplies are deficient in quantity and/or quality and new supplies must be made available. Droughts are common. Irrigation water is needed to increase and stabilize crop and livestock production. At other times, intense, heavy rainfall causes floods of serious proportions and results in heavy damage and, on some occasions, loss of life. Since rainfall is erratic and streamflow is highly variable, both seasonally and annually, means of regulating and conserving the natural flow of the area are vitally needed to provide water supply for beneficial purposes, including municipal and industrial requirements and irrigation. Regulation of streamflow, wherever adequate storage is available, is essential for flood control. Also, opportunities for recreation and fish and wildlife purposes are sparse or nonexistent in the basin, and new or additional facilities for these purposes are highly desirable.

With recognition of the apparent current and potential needs of the basin, consideration of economic factors, desires of the State and local interests, and the apparent willingness of potential project beneficiaries to assume repayment of reimbursable cost where required, the various opportunities for developments which would most nearly meet the needs were surveyed and evaluated. In the main, this consisted of examination of reservoir sites, surveys of lands to determine their suitability for irrigation, and a study of other physical factors that might have a bearing on a plan of development. In all, some 28 dam and reservoir sites were considered. Some of these sites were previously included in a plan of improvement for the basin de-

veloped by the State in the middle thirties, and other sites were located by the Bureau of Reclamation.

In consideration of the needs of the area, a basin plan was developed involving seven reservoirs on the main stream and tributaries. These reservoirs would provide water supply for municipal and industrial requirements, irrigation, and for flood control and other benefits. Of these reservoirs, only two have been determined to warrant consideration for authorization at this time, based upon their engineering feasibility, economic justification, and the desires of local interests who would utilize the projects and have indicated their willingness to repay the reimbursable costs involved. The reservoirs and related works selected for authorization are the Foss division and the Fort Cobb division. These two divisions of the Washita Basin project are multiple-purpose developments primarily for municipal and industrial water supply, irrigation, and flood control. They would also provide incidental benefits for recreation and fish and wildlife purposes.

The Foss division would consist of a reservoir on the main stream of the Washita River about 15 miles above Clinton, Okla., two pipelines to provide municipal and industrial water supply to Elk City and Clinton, and canals to serve a maximum of 9,440 acres of irrigable lands between the dam site and Clinton.

According to the plans presented in House Document 219, 83d Congress, 1st session, the Foss Reservoir would have a total capacity of 302,000 acre-feet, with storage allocation as follows:

Conservation capacity (municipal water and irrigation), 50,000 acre-feet.

Flood control, 177,000 acre-feet.

Sediment reserve, 75,000 acre-feet, or a total of 302,000 acre-feet.

The water supply pipeline to Elk City would be about 15.8 miles long, have a static pumping head of 387 feet, and would have a capacity of 4.15 million gallons daily.

The Clinton water supply line would be a gravity line about 14.6 miles long, and has a designed capacity of 4.41 million gallons daily.

Irrigation canals in the Foss division are gravity throughout and are designed to supply irrigable lands on either side of the river below the dam site. The maximum area that could be served would be about 9,440 acres.

Flood-control capacity in the Foss Reservoir is more than required to control the maximum flood record at the dam site.

The Fort Cobb division consists of the Fort Cobb Reservoir on Pond (Cobb) Creek, a water supply pipeline to Anadarko and Chickasha, and irrigation canals to serve a maximum of 16,260 acres in the vicinity of Anadarko and Chichasha. Irrigation water for the Fort Cobb division would be supplied from the unregulated flows of the Washita River, releases from the Fort Cobb Reservoir, and releases from the Foss Reservoir which exceed the irrigation needs of the Foss division.

The Fort Cobb Reservoir controls a drainage area of 290 square miles and has a designed capacity of 92,500 acre-feet. The capacities allocated for different uses are:

Irrigation and water supply, 15,000 acre-feet.

Flood control, 62,500 acre-feet.

Sediment reserve, 15,000, or a total of 92,500 acre-feet.

The water supply pipeline would be gravity flow, about 36.7 miles long, and have an initial capacity of 9.7 million gallons daily.

The irrigation canals would serve lands on both sides of the river by gravity by means of a common diversion on the main stream of the Washita River about 6 miles west of Anadarko.

Subsequent to completing the report contained in House Document 219, additional cities and towns in the vicinity of the Foss division have indicated an interest in obtaining a municipal and industrial water supply from the Foss Reservoir. These municipalities are south at Clinton and include Hobart as the most southern point. Water supply could be provided to these municipalities by nominal modification of the plan.

Allocations of additional water to municipal and industrial purposes will require an adjustment in the irrigated acreage. These adjustments can be made, if desired, without serious consequence to either the engineering or economic feasibility of the plan.

Senator ANDERSON. At that point, can you give us some idea of what adjustments there would be in the irrigated acreage and how much additional water will be desired for municipal and industrial purposes?

Mr. JENNINGS. There would be Hobart, Rocky, Cornell, and Bessie. We cannot give you an exact figure as to the amount of acreage that would have to be reduced to furnish water to these additional towns because we will have to reexamine hydrology studies very carefully in light of the severe drought in the past 2 or 3 years which do not show in our present studies. It may be a reduction of as much as 15 to 20 percent, as a guess, due to drought alone.

Senator ANDERSON. Would that make the project more feasible? You generally get more for industrial and municipal water than irrigation water.

Mr. JENNINGS. We feel certain it would make it better as far as the feasibility of the project is concerned.

Senator ANDERSON. Actually a good many of these projects tend to get to a point to where the more municipal water you can sell, the better the project, although that is not the primary purpose of the Reclamation Act.

Mr. JENNINGS. Generally speaking, that is the case, sir.

As to costs, the estimated cost of the Washita Basin project is $40,034,000, based on current prices. Of this, the estimated cost of the Foss division is $22,933,000, and the estimated cost of the Fort Cobb division is $17,101,000. These costs provide for the cost of the reservoirs, municipal water supply aqueducts, specific irrigation works such as canals, diversion dams, and so forth, and the $30,000 for specific measures for the benefit of wildlife. The cost of specific improvements around the reservoir areas for recreational purposes are not included in the estimated cost given above.

The estimated cost of operation and maintenance of the Washita Basin project is $162,445 annually. This includes the estimated cost of operating the reservoirs, irrigation systems, municipal water supply aqueducts, and specific wildlife measures. The above estimates do not include cost of operating and maintaining recreational features which may or may not be provided.

Senator ANDERSON. That change in the figure has nothing to do with the change in the method of calculation?

Mr. JENNINGS. No, sir.

Without allocations to specific recreation features, fish and wildlife, and recreation as contained in H. Doc. 219

Purpose	1951 costs and 1953 (H. Doc. 219) tentative allocations	1955 costs and 1955 adjusted tentative allocations
Municipal water	$10,370,000	$15,200,000
Irrigation	3,410,000	7,075,000
Flood control	15,417,000	9,475,000
Total	29,197,000	31,750,000

BENEFITS AND COSTS

The Foss and Fort Cobb divisions of the Washita Basin project will meet the municipal and industrial water requirements of the cities included in the plan, and, with nominal modification, could supply water to other towns of the area which have indicated an interest in obtaining a better water supply. The plan also provides for a substantial amount of irrigation which will stabilize and improve the economy of the area. The reservoirs would provide a large measure of flood control by protecting lands and improvements in the flood plain for a considerable distance below the reservoirs.

The average annual benefits of the project, exclusive of recreation, based on procedures used in House Document 219, are estimated to be $1,900,000. The average annual cost of the project is $1,331,558. The resulting benefit-cost ratio is 1.42 to 1.

ALLOCATIONS

The estimated construction cost of the Washita Basin project at 1951 and 1955 price levels with allocations shown as in House Document 219, 83d Congress and with tentative allocations under the new established procedures are as follows:

S. 180 provides for allocations to irrigation, fish and wildlife, and recreation. Construction costs for all features included in this bill at 1951 and 1955 price levels with the two methods of allocations are as follows:

Purpose	1951 costs and 1953 (H. Doc. 219) tentative allocations	1955 costs and 1953 methods tentative allocations	1955 costs and 1955 adjusted tentative allocations
Municipal water	$9,981,000	$12,400,000	$15,000,000
Irrigation	10,643,000	11,400,000	15,175,000
Flood control	15,417,000	15,400,000	9,475,000
Fish and wildlife	839,000	850,000	400,000
Recreation	549,000	550,000	550,000
Total	37,429,000	40,600,000	40,600,000

REPAYMENT

House Document 219 shows that the cost of municipal water to the cities of Clinton, Anadarko and Chicasha would be the same. Cost to Elk City would be 3 cents per thousand gallons greater be-

cause of the requirements for pumping. It is estimated that on the basis of 1951 prices and 1953 allocations a water rate of about 11.5 cents per thousand gallons for raw water gravity flow would be required to effect project repayment within the 50-year period. The new tentative allocations would increase the rates some 50 percent to about 17 cents per thousand gallons of raw water gravity flow.

The Washita Basin Improvement Association, representing the municipal, agricultural, and industrial interests in the area, has advised that the water users would carry their fair share of the cost for use of the water, but could not meet the excessive increase in cost due to the new allocation procedure. They considered 13 to 15 cents per 1,000 gallons and $144 per acre to be the absolute maximum on which they would be willing to sponsor the project and urged that should construction costs decrease that they be given full credit for such savings.

Analysis of irrigation payment ability indicated that annual water assessments for the Foss area would be $7.80 per acre and that for the Fort Cobb area it would be $6.25 per acre. Annual operation, maintenance, and replacement costs are estimated as $4.25 per acre for both areas. Accordingly, reimbursement from 9,440 acres of the Foss area at $3.55 per acre for 50 years would amount to $1,676,000 and from 16,260 acres of the Anadarko area at $2.00 per acre for 50 years would amount to $1,626,000. Total repayment from irrigation would be $3,302,000.

Senator ANDERSON. This would be a good place for me to renew the question I asked before. If these dams were built solely for flood control, what would be the cost?

Mr. BENNETT. $20,500,000.

Senator ANDERSON. Both dams?

Mr. BENNETT. Yes, sir.

Senator ANDERSON. Under the project, do you know what it costs for the dams?

Mr. BENNETT. The dams themselves, Mr. Chairman?

Mr. JENNINGS. For the Fort Cobb 1955 present day price levels would be $8,276,000. For Foss, it would be $14,461,000. That is the cost of the dams only.

Senator ANDERSON. $22,737,000 for the cost of the dams only. Will you tell me what is the difference between $20,500,000 and $22,737,000?

Mr. BENNETT. The prices he gave you are for the multiple-purpose dams and reservoirs which would be a little more than for single-purpose flood control structures.

Senator ANDERSON. But only about $2 million is added by the multiple purpose as against the single flood-control project. If they were built solely for flood control, the cost would be the same regardless of what allocation you used.

Mr. BENNETT. That is right.

Mr. JENNINGS. We are talking about a different capacity in dams, though, sir.

Senator ANDERSON. I understand that. If they were built solely for flood control, this $20,500,000 figure, regardless of which way you went at it, the cost would be the same.

Mr. JENNINGS. Yes, sir.

Senator ANDERSON. What does the Corps of Engineers estimate the amortized value of the flood control storage in these reservoirs?

Mr. BENNETT. It is about $26,200,000.

Senator ANDERSON. What is the annual flood damage that may be prevented by the construction of these dams?

Mr. BENNETT. About $716,000 annually for both of them.

Senator ANDERSON. Do you agree with that figure?

Mr. JENNINGS. There are two methods of figuring it, sir. That figure is on the system benefits, is it not?

Mr. BENNETT. No, that is the two-reservoir system.

Mr. JENNINGS. We have seven reservoirs on a system on which the corps figured flood-control benefits. They assigned under the system respective benefits to the individual reservoirs in the system. If those reservoirs were built outside of the system, and before any of the other reservoirs were built, they would contribute greater flood control benefits to the individual reservoirs than if they were not incorporated in the system. I think that is the figure that was quoted to you, sir.

Senator ANDERSON. When you submitted this to the Congress, this House Document 219, you said that 1951 prices were used. Now you have made some adjustments because of 1955 prices?

Mr. JENNINGS. Yes, sir.

Senator ANDERSON. What table or scale do you use for estimating those changes?

Mr. JENNINGS. They were brought up, sir, by construction indices, and the major raises were in concrete pipe.

Senator ANDERSON. How about steel pipe?

Mr. JENNINGS. There was also a raise in steel pipe.

Senator ANDERSON. Was that substantial?

Mr. JENNINGS. That was about 1.35. I would have to check that.

Mr. BARCLAY. The 1951 price is $1,272,000, and the current price is about $1,686,000. That is on the steel pipe.

Mr. JENNINGS. You don't have it by indices, do you?

Mr. BARCLAY. No, sir.

Senator ANDERSON. Not long ago we had an interesting set of figures submitted, I think before the Atomic Energy Committee, indicating that while construction costs had gone up, heavy construction costs had not gone up. Would this not be regarded pretty much as heavy construction?

Mr. JENNINGS. A certain type of it would, sir. I think our indices pretty well bear that out.

Senator ANDERSON. Dirt in New Mexico was being bid at lower prices than we have known for 20 years. Concrete in place has been a rather low figure compared to 10 years ago.

Mr. JENNINGS. Yes, sir.

Senator ANDERSON. Does that have any bearing on the construction of a dam?

Mr. JENNINGS. Very definitely, sir.

Senator ANDERSON. Then why is there a change in these prices?

Mr. JENNINGS. The principal change in prices has been in the manufacture of concrete pipe. That is actually a manufacturing process.

Senator ANDERSON. How much concrete pipe is there in this?

Mr. JENNINGS. I have the mileages here on the various pipes that I can give to you.

Senator ANDERSON. Because of the supplying of water to these municipalities.

Mr. JENNINGS. Yes, sir. The supply line to Elk City would be 15.8 miles long. The supply line to Clinton would be 14.6 miles. The supply line to Fort Cobb would be 36.7 miles. Our costs on dams and the heavy type of construction that you were talking about has changed very little. In some instances if anything, it has dropped slightly. But the costs involved in the manufacturing of concrete pipe and steel pipe and those items have raised.

Senator ANDERSON. You indicated that steel pipe was only up less than $200,000. You have gone up several million dollars.

Mr. JENNINGS. There is, sir, a slight contingency item included in our estimate by reason of the fact that the House document does not include the plan for picking up these other cities. That is, we do not have a complete firm plan on that.

Senator ANDERSON. I am trying to get this thing back to where the Bureau of the Budget approved it. If we did not pick up the other cities and left them out, and went ahead with the irrigation project as it was, then the costs would be about as they were in 1951.

Mr. JENNINGS. No, sir. We would have to take the raise in costs involved in the pipelines.

Senator ANDERSON. That is only $400,000.

Mr. JENNINGS. No, sir. He was only quoting on the steel pipe. That is the one that goes to Elk City. The reason that is steel is that they have to pump and we have a high head on the pipe. The rest of the pipes are gravity flow, and they would be concrete pipes.

Senator ANDERSON. How much has concrete pipe gone up?

Mr. JENNINGS. I think the index is about 1.35.

Senator ANDERSON. Does that mean roughly a third?

Mr. JENNINGS. Roughly a third, yes.

Senator ANDERSON. What is the total cost of the concrete pipe?

Mr. JENNINGS. I have the list in here showing the 1951 prices and the 1955 prices.

Senator ANDERSON. Does that give what the concrete pipe would be?

Mr. JENNINGS. It brings out the total prices of the construction of the various aqueducts and construction of the dams and so on.

Senator ANDERSON. Would you mind if this was put in the record at this point?

Mr. JENNINGS. No, sir.

Senator ANDERSON. It is not in your statement.

Mr. JENNINGS. No, sir; not this particular information.

Senator ANDERSON. I will read that into the record at this point.

WASHITA BASIN PROJECT

Cost and repayment data

Purpose	1951 costs	1955 costs	1953 (H. Doc. 219) tentative allocation	1955 tentative allocation
Municipal water	$9,981,000	$12,408,000	$9,981,000	$15,000,000
Irrigation	10,643,000	11,387,000	10,643,000	15,175,000
Flood control	15,417,000	15,417,000	15,417,000	9,475,000
Fish and wildlife	839,000	839,000	839,000	400,000
Recreation	549,000	549,000	549,000	550,000
Total	37,429,000	40,600,000	37,429,000	40,600,000

	1955 price level	1951 price level
Foss Division:		
Dam	$14,461,000	$14,305,000
Elk City aqueduct and pumping	1,686,000	1,272,000
Irrigation works	4,891,000	4,520,000
Clinton aqueduct	1,875,000	1,393,000
Subtotal	22,913,000	21,490,000
Fish and wildlife	20,000	20,000
Total	22,933,000	21,510,000
Fort Cobb Division:		
Dam	8,276,000	8,188,000
Anadarko irrigation	3,374,000	3,133,000
Anadarko-Chickasha aqueduct	5,441,000	4,039,000
Subtotal	17,091,000	15,360,000
Fish and wildlife	10,000	10,000
Total	17,101,000	15,370,000
Total cost estimates:		
Project division:		
Foss	22,933,000	21,510,000
Cobb	17,101,000	15,370,000
Total	40,034,000	36,880,000
Recreation	549,000	549,000
	40,583,000	37,429,000
Rounded	40,600,000	37,450,000

It indicates that Anadarko Chickasha aqueduct will cost at 1955 price levels $5,441,000. 1955 price was $5,039,000. Have you had any competitive bidding in the area on aqueducts and concrete pipe which would indicate that the cost in that area is up that much?

Mr. JENNINGS. Offhand, sir, I do not know. These indices and price levels $5,441,000. 1951 price was $4,039,000. Have you had tion that is available throughout the West.

Senator ANDERSON. One final question on these allocations. The cost allocation in this House document allocates to flood control $15,400,000, and under this separable cost-remaining benefit method it is estimated flood control is $9,475,000. That is a difference of about $6 million.

Was there any legal basis for that change or was it merely an administrative decision on the part of some agency.

Mr. BENNETT. It is an administrative decision. There is no legal requirement on methods of allocation.

Senator ANDERSON. Can you explain why it is done, then?

Mr. BENNETT. I think Mr. Bradley covered it fairly well.

Senator ANDERSON. He just said he thought it was more desirable. I imagine the people out in Oklahoma would think it was less desirable, and we would have an argument on that point.

Mr. BENNETT. It arises out of two things, sir, in this particular instance. One is the letter of July 28, 1953, from the Bureau of the Budget, which, among other things, approved the submission of the previous report with the understanding:

> The Bureau of the Budget agrees with the above objectives and believes the authorization of the Washita project should be subject in addition to the recommendations contained in your revised project report to the following specific conditions.

Senator ANDERSON. That is what part of the Government?

Mr. BENNETT. This is the Bureau of the Budget letter July 28, 1953.

Senator ANDERSON. Just before you get that into the record may I read into the record section 9 (b) of the law which says:

> In connection with a new project, new division of a project, or supplemental works on the project, there may be allocated to flood control or navigation the part of said total estimate which the Secretary may find to be proper.

It does not say anything about the Bureau of the Budget in the law.

Mr. BENNETT. No, sir.

Senator ANDERSON. I have been kicking about the Bureau of the Budget taking over the functions of the Government without proper legal authority for a long time. I found out one time the Bureau of the Budget thought that I could not as Secretary of Agriculture do certain things. The law said I could not, but the Bureau of the Budget did not say so. The Bureau of the Budget required that you submit an estimate. My understanding is that this is not the Secretary of the Interior but the Bureau of the Budget laying down restrictions as to what he should find.

Mr. BENNETT. It is a combination of things.

Senator ANDERSON. The law does not even mention combination.

Mr. BENNETT. No, sir.

Senator ANDERSON. Go ahead.

Mr. BENNETT. The specific condition was as follows:

> The proposed allocation to project cost of flood control and reimbursable purposes of water supply and future irrigation storage shall be adjusted to conform to the procedures and standards which prior to initiation of construction may be established for use by all agencies.

Senator ANDERSON. Where are you reading?

Mr. BENNETT. I am reading on page 2, just below the middle of the page.

Senator ANDERSON. Go ahead.

Mr. BENNETT. That is the one which covers the suggestion of the Bureau of the Budget on allocations. Shortly thereafter—I should not say shortly—at the same time the agencies were working together to arrive at a method or methods which could be used by all agencies which finally culminated in March 1954.

Senator ANDERSON. I am raising these questions only because they are bound to come up again and again as to whether or not the Bureau of the Budget shall lay down the criteria that shall be used or whether the Secretary shall do so. After all, he is the one who is trying to

find out whether these projects are feasible or not. He proceeded to find out that this project was feasible and workable, and was about to be passed by the Congress. So along comes the Bureau of the Budget and said, "Wait a minute. Never mind what the Congress or Secretary wants. We are going to handle this all by ourselves." I do not find anything in the Constitution or anything in the laws that says the Congress has been superseded by the Bureau of the Budget. It is not your fault and I am not trying to be critical of what you are doing.

Mr. BENNETT. We have Mr. M. G. Barclay, our area engineer at Oklahoma City, in the event you have any questions on details.

Senator ANDERSON. Perhaps we might have a statement from him.

Mr. BENNETT. He has not prepared a statement.

Senator ANDERSON. That will be all, then.

Mr. Conel.

STATEMENT OF ALBERT CONEL, CHAIRMAN, WASHITA BASIN IMPROVEMENT ASSOCIATION, ANADARKO, OKLA.

Mr. CONEL. I am Albert N. Conel, chairman of the Washita Basin Improvement Association, which pertains to the Washita project, Foss and Cobb Creek.

Senator ANDERSON. We are glad to have your statement.

Mr. CONEL. First, may I thank you for this opportunity of our group being here.

Senator ANDERSON. We are glad to have you here.

Mr. CONEL. My assigned topic on this particular mission is municipal water supply. I think this committee, Mr. Chairman, is interested in a situation that confronts us as much as they are in the figures involved for the expenditures for the project.

16 towns involved represent a large area of western Oklahoma. The Foss and Cobb Creek projects, according to all of the reliable information that we have been able to get, are the only logical potential water supplies for our towns that would supply a sufficient amount of water and of sufficient quality. The people that I am representing feel that they are not asking for charity inasmuch as we are willing to enter into an agreement with the United States Government to repay that portion for municipal water directly to the Government.

Last summer it was necessary for Chickasha to put sand bags in the Washita River to create a pool large enough to get water in the intake pipe to pump into their water system.

Senator ANDERSON. In other words, they put a small dam across the river with sandbags?

Mr. CONEL. Yes, that is right. There were times there when it appeared that they would be completely out of water. I would like to report that recently the Chickasha area has made exploration tests for water underground, and have not been able to get it.

At Anadarko last year, it was necessary to stuff hay in the cracks of the floodgates to hold the water back so that we could get sufficient to pump into our basins.

These two towns I have just mentioned are county seats. Chickasha is the county seat of Grady County. Anadarko is the county seat of Caddo County. For many years they have had difficulty with the water systems. They have spent much money for lakes. But still they don't have a water supply.

Clinton at the present time is rationing water or prohibiting the citizens of Clinton from washing cars and such things as that.

Then the little towns in between which we propose to serve from these projects, Bessie has had to haul water, Corn has had to haul water for the last 2 or 3 years, and they have also tried to find water from wells. That is the general overall picture. We realize that the Bureau of Reclamation is not directly responsible for supplying municipal water, but since this is a multipurpose project and so much of it is reimbursable to the government, the citizens of that area feel that the Bureau of Reclamation has worked out a very fine plan. If we can get a bill approved that is within our payment capacity, I would like to state to you that I am authorized by the city governments, by the chambers of commerce, and the civic clubs of these several communities to represent them.

I have been working with these projects for many years, Mr. Chairman. This is about the sixth or seventh trip that I have made to Washington on behalf of those towns. Our organization is operated on a civic basis. No man receives any compensation whatsoever for his efforts. Our twons are formed in a combine out there just like one civic group working together for the development. If we can get water, we will not only save what we have, but we will rebuild what we have lost, because it will supply us with water for some industrial development.

The western part of Oklahoma is rich in resources of various kinds which will be supplied in statements to follow me. But we cannot develop them without water. Even though the town populations have shown an increase, the farm populations have shown a decrease. Since our area is predominantly agricultural and since the water situation has grown so severe, the young men and young women growing up in our community do not feel that they have a future there and are leaving. That is roughly the story.

Although the two reservoirs would serve many needed purposes, the function of most concern and immediate need to the cities and towns is an adequate supply of municipal water of suitable quality. I will confine my comments to this topic and leave the discussion of other purposes of the project to other members of the association.

Our people need water—good water. They need it badly. Present supplies which serve most of the cities and towns represented by the Washita Basin Improvement Association are of insufficient quantity for many months of each year. And when supply is sufficient the water fails to reach the quality desired for human consumption. Many of our towns have had bitter experiences with individual stopgap water-supply measures which provide only for the present or immediate future and which result in expensive recurring problems with no provision for growth and development.

The proposed Foss and Fort Cobb reservoirs offer the answer to our problems. Surveys and studies conducted over a number of years indicate that these reservoirs offer the only source of suitable quality water which would be adequate for our present and future needs. The original plan of development, as recommended by the Bureau of Reclamation for the 2 reservoirs, provided new water supplies for the 4 towns of Anadarko, Chickasha, Clinton, and Elk City. A brief statement of present water supply conditions in these cities seems to be desirable.

Both Anadarko and Chickasha obtain their present water supplies

from unregulated flows of the Washita River. Dangerous water shortages have occurred at both cities, and the inferior quality is notorious, particularly during periods of low flow.

Anadarko pumps its water from pondage provided by a low-water dam on the river. It has been necessary on several occasions to cut off the raw-water pumps at the river due to the extreme low-water level. It has also been necessary to pack hay in the cracks on the gates to store as much pondage as possible. For a period of several weeks the only river water that flowed past our plant and on to Chickasha was that which seeped through the dam. I assure you this was a very small flow. At a number of locations between Anadarko and Chickasha, the riverbed has been bone dry. Had it not been for a heavy rain in the nick of time, I am sure that both Chickasha and Anadarko would have been without water within a short period of 5 days. The situation is serious.

A large Western Electric steam plant located at Anadarko obtains its water from six wells. A large Public Service steam plant located on the Washita River upstream from Anadarko utilizes water from the river. These plants have been in operation about 18 months. The Western Electric Cooperative plans to double its present plant capacity of 34,000 kilowatts and the Public Service Co. plans to increase its capacity from 160,000 kilowatts to 500,000 kilowatts. Although the Western Electric plant uses ground water, the river must supply the water, just as in the case of the Public Service plant. I have been advised by reliable sources that the two powerplants will use approximately as much water in the future as Anadarko and Chickasha combined. This means that the Washita River is going to have to furnish 100 percent more water. In my opinion, it will be unable to do that job.

As previously stated, the quality of water obtained from the river is inferior and usually there is a period of some 30 days each year when the taste and odor is such that the water cannot even be used for making coffee.

The water situation in Chickasha is similar to that in Anadarko. Serious shortages have been experienced several times in the past. During the summer of 1954 there was a period of some 12 hours when the pumps could not operate because of low-water levels. Chickasha has the unenviable distinction of having the hardest water of any town in the Washita River Basin.

The water supply problem at Clinton is one of quantity rather than quality. The city now obtains its water from a small reservoir on a tributary of the Washita River which was constructed for a population of 5,000. Clinton's 1950 population was 7,555. The already overtaxed facilities are being further depleted by the rapid accumulation of sediment. The need for an adequate water supply is critical at the present time and is essential to the future growth and development. Because of oil development in western Oklahoma, the growth of Clinton during the recent past has greatly exceeded normal and even more rapid industrial development is anticipated in the future if adequate supplies of suitable water can be obtained.

During the summer of 1953, Clinton spent some $75,000 in unsuccessful ground-water explorations. The inadequate quantities obtained were not usable because of silt content and extreme hardness. Studies have indicated that there are no "live" streams in the area

which would furnish adequate water supplies for Clinton's estimated future needs and which would be within the city's ability to provide.

Elk City is also faced with problems of rapid growth as a result of nearby oil development; the city pumps its water from groundwater sources some 16 miles distant, which is already being tapped also by oil-related industries. The city is concerned about the adequacy of supply for its expanding needs. The pipeline to the water well field is now inadequate and the city must soon construct a new line to the wells or go to another source.

Since completion of the Bureau of Reclamation report, and since approval of the plan by the Commissioner of Reclamation and the Secretary of the Interior, our neighboring towns also found that they needed a water supply and asked that they be included in the Washita Basin Improvement Association. In addition to the four cities included in the report plan as discussed above, the towns of Corn, Bessie, Rocky, Cordell, Getebo, and Hobart, have indicated an interest in obtaining a water supply from Ross Reservoir, and the towns of Fort Cobb and Verden have indicated an interest in obtaining water from the Fort Cobb Reservoir. Most all of these towns already have a serious water problem.

Except for Cordell, with a 1950 population of 2,920, the additional towns are small and the quantity of water which would be required from Foss and Fort Robb Reservoirs would not be sufficient to materially affect the plan now being considered. The necessary minor modifications could easily be accommodated prior to construction.

We are not asking the Congress for charity. The plan of development for these projects provides that the cities would enter into a contract with the Secretary of the Interior to repay the reimbursable costs of the reservoirs and delivery facilities, with interest, within a 50-year period. These costs amount to a substantial part of the total cost of the projects. The people are willing to pay the reimbursable costs as stipulated in the Washita Basin report which has been printed as House Document 219, 83d Congress, 1st session.

We have no paid promoters. We have no paid organization promoting or supporting us. We are a group of local citizens asking you to help us develop a supply of drinking water. We need the water now. We are 25 years late with this work of development. Again we plead for your support and speedy action. We feel that we are not asking too much.

I have statements from several of the towns and from the Western Farmers Electric Cooperative which I should like to read to you.

BESSIE, OKLA., *February 12, 1955.*

H. B. SOUTHWOOD,
Bureau of Reclamation, Post Office Box 495,
Oklahoma City, Okla.

DEAR SIR: After carefully reviewing the statement made before the House and Senate subcommittees of the Committee on Interior and Insular Affairs, I find conditions here have become worse due to the continued drought.

People are coming here now, inquiring about existing housing or sites for new buildings, and they find it very discouraging because of insufficient quantities of very poor water. These inquiries are from future personnel and employees of the airbase being constructed near here.

That is signed by B. E. Crane.

Here is another dated Rocky, Okla., February 12, 1955, addressed to Mr. Southwood.

DEAR SIR: The town of Rocky has, for a long time, considered the question of planning an adequate water supply which will insure the further growth and development of this community and reduce or eliminate the problems which continue to confront this community as a result of an undesirable domestic and industrial water supply. Our available supply under normal circumstances contains 17 percent sodium salts and is 85-percent hardness. This renders it very poor quality for household, drinking, or industrial purposes.

The town of Rocky is located in a potentially rich agricultural area. It lacks only proper water supply to capitalize upon this agricultural potential. At the same time industrial development could take place in this area if water were made available for use in manufacturing and processing plants which could use natural gas, crude oil, also gypsum and other raw materials in our area. The population of Rocky has declined materially since 1940 and the per capita income of the citizens is only 75 percent of the State average.

Although the farmlands in this area may not be close enough to the proposed Foss Reservoir to benefit directly from irrigation, we do feel that any improvements or benefits derived from irrigation in western Oklahoma, would, directly, benefit our town and our trade area. We earnestly hope that Congress will see fit to take favorable action to alleviate the water shortages which exist in the western Oklahoma area in order that our people will be able to develop our abundant resources.

That is signed by the mayor of the town of Rocky, Okla., Roy Nichols.

This letter is dated February 9, 1955, addressed to me as chairman of the Washita Basin Improvement Association from the Western Farmers Electric Cooperative.

DEAR MR. CONEL: Western Farmers Electric Cooperative has, as you know, its steam plant in operation located 1 mile from the city of Anadarko. The capability of the plant is 34,000 kilowatts. Our requirements for water runs as high as 20 million gallons per month and will increase as the load on our plant increases. We are currently pumping water from six wells, and we believe the water table is receding as our wells are not producing water at nearly the rate that they were even 10 to 12 months ago. Besides, the chemical composition of the water is aparently undergoing changes because it is costing us about twice as much to treat the water from these wells as we anticipated at the time the plant was built. We need water. We need good water for this plant and need it at the rate of about 1 million gallons per day.

As the plant becomes more fully loaded, our requirements for water will increase. Furthermore, we are working on an application to borrow more funds from the Rural Electrification Administration to double the size of this plant which, of course, will double our water requirements for all practical purposes.

We sincerely hope that the Cobb Creek Dam will be built so that we can join hands with the city of Anadarko in procuring our water supply because we do not feel that we can depend on our water wells very much longer.

Western Farmers is supplying the power requirements of about 50,000 farmers and rural business establishments in 32 counties in western Oklahoma. In this day and age, an abundant supply of electric power at reasonable rates is a must if the agricultural and industrial capacity of our area is developed, not only for the good of the area, but for the good of the national economy of the whole United States. Thus, the building of the Cobb Creek Dam and the resultant water supply would benefit directly all of the 50,000 users of our power and somewhat indirectly, the welfare of every town and community in the 32 counties. Every business that is set up needs power, puts people to work and improves the economy of our area.

Let me say in closing that Western Farmers Electric Cooperative gives its whole-hearted support to the proposal to build Cobb Creek Dam because it is one of the keys to the economic improvement throughout western Oklahoma.

Respectfully,

WESTERN FARMERS ELECTRIC COOPERATIVE,
By E. E. KARNS, *General Manager.*

I will be glad to answer any questions you would like to ask.

Senator ANDERSON. This committee throught well enough of this project to report it favorably and the Senate thought well enough of

it to pass it. Has anything happened since that time to make this project less desirable, or is it more desirable?

Mr. CONEL. More desirable.

Senator ANDERSON. Is it more necessary?

Mr. CONEL. It is more necessary.

Senator ANDERSON. Have the winds and dust storms and the general drought of that area added to the reasons why Congress should act upon it quickly?

Mr. CONEL. I believe the records will show that it is worse than it has ever been there.

Senator ANDERSON. That is my impression.

Mr. CONEL. There is a great need for public works in the area at the present time. If we had a project in process now that would relieve the situation there tremendously.

Senator ANDERSON. Is that because there is not enough employment on the farms?

Mr. CONEL. That is right, sir.

Senator ANDERSON. Very well. Thank you for your statement. Mr. Cary.

STATEMENT OF L. G. CARY, WASHITA BASIN IMPROVEMENT ASSOCIATION, CHICKASHA, OKLA.

Mr. CARY. Mr. Chairman, my name is L. G. Cary, representing the town of Chickasha, and the surrounding community there, authorized by the citizens of that town to speak in their behalf. I am speaking to you today on the opportunity of the great industrial and agricultural development which can be had in the Washita Basin if the Foss and Fort Cobb projects are authorized and completed. In the following remarks, I will endeavor to show the deplorable conditions as they now exist, under the lack of an adequate supply of water of good quality, and the conditions which can and will exist under an ample supply of good water should the Foss and Fort Cobb Creek projects be completed.

Although at the present time the basin is primarily one of agricultural production, it is, from several aspects, favorably endowed with the essential elements necessary for industrial development. The area is centrally located with respect to market areas for industrial products. To the east is the large Oklahoma City area, to the south is the Fort Worth-Dallas area, and to the west is the Amarillo, Lubbock area. Besides location, many raw minerals, in abundant quantity, are located in the basin. Besides oil and gas these minerals and some of their more important uses are:

Anorthosite: A high lime feldspar from which aluminum oxide, soda, ash and potash can be produced.

Caliche: Calcium carbonate combined with sand, gravel, clay, etc. Many Oklahoma deposits have been found suitable for rock wool.

Clays and shales: Used in the manufacture of brick, sewer pipe, fire brick, tile, etc.

Dolomite: A mineral consisting of calcium and magnesium carbonate. Used as a flux in the production of pig iron. Used also as an agricultural limestone, a rubber filler, building stones, etc.

Gypsum: Used for plaster, wallboard, insulating, etc.

Woolrock: Made into rock wool. It is a heat and sound insulating material.

Volcanic ash: Used in the manufacture of scouring preparations and hand soap. Also used as a cement mixture, for accoustic stucco and plaster. Another important use is in the manufacture of light weight insulating material and in tile building blocks.

Lightweight aggregate: Shale and clay used as a substitute for sand and gravel in concrete products. Resulting concrete weighs about one-half the weight of ordinary concrete, is equal in strength and does not absorb water.

Iron and copper: These minerals have been found in various locations and are believed to be of such quantity as to warrant development.

Except for oil and gas, little has been done to the present time in developing or processing these raw materials. Oil and gas are produced in quantity, particularly in the Elk City area, but the major portion of the crude oil produced is transported from the area for refining while a large part of the natural gas is being held in reserve for future use. Such industries as do exist are confined primarily to those requiring little water, such as cotton ginning, brickmaking, pottery manufacture and assembly plants.

During the past there has been a marked interest on the part of large industrial concerns for establishing plants and developing the raw materials available in the basin. Industrial surveys have been conducted by these companies in cooperation with local city chambers of commerce. These surveys have invariably concluded that the only obstacle to industrialization is the lack of suitable water in sufficient quantity. Some specific cases are: A trailer factory, a tannery, a railroad roundhouse, a packing plant, a clothing factory, an electric-light bulb factory, a woodworking plant, a chemical plant. Large manufacturing companies have surveyed the basin with the objective of locating plants in the area but have decided not to go ahead primarily because of the inadequate water supply. A specific example is the powerplant of the Public Service Co. of Oklahoma at Anadarko. This plant, now constructed to a capacity of 160,000 kilowatts, is supplying much needed electric power throughout the area and is tied into a statewide distribution system. Future expansion of the plant is planned for up to 500,000 kilowatts of capacity which includes the installation of an additional 100,000-kilowatt unit in the near future. I am advised that even this desirable immediate expansion cannot be undertaken until an assured water supply over and above that now existing is available.

In addition to the opportunity that exists through production of minerals, the processing of agricultural products could be a most important part of industrial development. Farming is the primary occupation of the people of this area, and the basin is a rich agricultural area. Mr. Woodall has described the farming situation to you. My interest is in the fact that 98 percent of all agricultural products are shipped from the area for processing into marketable foods, yet the market area for these goods, in general, surrounds the basin. Processing plants centrally located to these market areas would not only be a valuable asset to the local people, but would also permit more efficient and economical processing and marketing of the products. To emphasize this point, statistical records show that over $113 million of farm products were produced in the six Wichita Basin Improvement

Association counties in 1949, yet only 1.6 percent of this value was processed in Oklahoma.

Because of mechnization and improvement in farming operations and because of lack of other opportunity for general employment, the population of the area has been on the decline for many years. This situation is not in keeping with the energies and desires of our people. We feel that we have the basic reserves and capabilities of improving the opportunity and future of our young people as well as establishing a well-balanced local economy capable of holding and sustaining a greater population. Industrialization would also permit the Washita Basin area to improve the economy of the State and Nation in many ways, not the least of which would be an increased tax base.

I have presented all the foregoing to emphasize the opportunity for industrialization that exists and our interest to do something constructive toward the realization of improved conditions. It is apparent that some vital factor is missing or progress would have been made in the past. This factor, and I cannot impress it on you too strongly, is water. Our supply is inadequate for domestic use to say nothing of water for agriculture or industrial expansion. Furthermore, the water we have, in many instances, is of poor quality. As indicated to you by other members of this group, there is a source of good water that would permit us to go ahead with our plans and ideas for the basin. We have studied the problem for many years and we are convinced that the construction of the Foss and Cobb Creek projects is the best way of correcting our present situation. With the supply of good water that those reservoirs would make available, the Washita Basin would be able to assume its rightful place in the economy of the State and Nation. For these reasons, I am thoroughly in accord with the plan presented here today and respectfully ask that the projects be favorably considered by this committee and the Congress.

I believe that Mr. Conel has covered the situation very well. I might add that the industrialization is almost nil in our country. We haven't any industries. I have had occasion to travel over these 6 counties over the last 28 years and what little industry we had has practically disappeared.

Senator ANDERSON. The last time I was at Chickasha, there was some oil developing going on.

Mr. CARY. Oil development?

Senator ANDERSON. Yes.

Mr. CARY. There is a great deal of oil development going on now. In fact, our county of Grady in Oklahoma I think is the hot spot in the whole State at the present time in leasing and drilling development. Unfortunately, we have not struck very much oil, but there is certainly a lot of drilling going on there.

In the lower part of the county it is very rich in oil.

We figure that if we get an adequate supply of good water that we could increase our industrialization to a great extent. Briefly we have in those 6 counties 8 or 10 different minerals. For instance, we could have brick and tile manufacturers. We have volcanic ash that makes very fine concrete. We have agricultural limestone. We have rockwool that can be made into insulation material and we have gypsum that can be made into plasterboard, and insulating materials. We do not have anything going on out there at all in these six counties in the way of industry. Then we have had in the past several industries from

the East and different sections of the country look over the situation there with the view of putting in a factory of some kind. We have plenty of labor. We have plenty of cheap natural gas and fuel oil. They come to our chamber of commerce or the different chambers of commerce around there, and they ask about our water supply, and we tell them that we have 52 to 62 grains of hardness in our water from the Washita River, and sometimes practically no water and they say thank you, and go over to the east part of the State or some other State.

I could name you 2 or 3 large factories that looked into the situation there, and did not establish their factories there on account of the lack of water.

The Public Service Co. has a little town called Washita, and they are desperately in need of water to increase their facilities there. I believe that covers the situation there. We just don't have any industries because we don't have the water.

Senator ANDERSON. Thank you.

Mr. CARY. Thank you, sir.

Senator ANDERSON. Mr. Woodall.

STATEMENT OF PARKER WOODALL, OF VERDEN, OKLA., REPRESENTING FARMERS IN THE WASHITA VALLEY, OKLA.

Mr. WOODALL. Mr. Chairman, I am Parker Woodall, of Verden, Okla. I was chosen by the farmers in the valley to represent them and assure you that irrigation and flood control is as equally important to us and the towns and cities as is the municipal water supply and industrial development.

The size of farms in Grady County since 1945 has increased 17 percent. That is 9 years. The average size farm in Grady County is 188.7 acres in 1945. It was 206 acres in 1950, and in 1954 it was 220 acres. That means that the small farmers were not able to withstand recurring droughts and forced to abandon their farms.

Senator ANDERSON. Do you have any water supply other than natural rainfall in that area now?

Mr. WOODALL. No.

Senator ANDERSON. Do you pump?

Mr. WOODALL. Yes, I will explain that. Here in Grady County there was 11,000 acres irrigated from wells.

Senator ANDERSON. How deep?

Mr. WOODALL. I mean north Caddo County. About 200 feet. That was financed by loans from the Department of Agriculture, the Farmers Home Administration. I think the loans run up to $5,000 per individual, and $25,000 for associations.

Senator ANDERSON. I am just anxious to know that because I am the one who introduced the bill.

Mr. WOODALL. They are doing it this year with loans from the Department of Agriculture.

Senator ANDERSON. Is it working out all right?

Mr. WOODALL. They are going to double it this year.

Senator ANDERSON. In this whole valley, it is impossible to get a well to irrigate. At Verden we have three little city water wells in the valley that barely afford enough water for 500 people.

This area is first in Oklahoma. It is just as productive as the Yellow. I also want to challenge a statement awhile ago that the annual flood

loss there is more than was stated, because this area now is practically out of production because of the reoccurrence of floods. I think it is 2 or 3 times as great as he said it was. All the irrigation out of the river you either have to pipe across this bottom which is about a mile wide, and then you have a flood which washes out the ditches. So we cannot maintain it successfully.

Senator ANDERSON. What is the average size of the well in the area you spoke of?

Mr. WOODALL. They are 3,000 feet deep, and I believe they irrigate 40 acres.

Senator ANDERSON. 3,000 feet?

Mr. WOODALL. 300 feet deep.

Senator ANDERSON. Is it a 6-inch well or 4-inch well?

Mr. WOODALL. Eight, ten, and twelve.

Mr. MCBRIDE. I noticed one in Caddo County north of Verden which would be 40 miles north or 35 miles, that takes 900 gallons a minute, and it has a static head a foot or two from the surface. I made a survey of the Washita bottom lands in 1936 when I was State engineer for the State of Oklahoma. We have on the Washita River about 400,000 acres of bottom lands. As Mr. Woodall told you, about half of that, 200,000 acres, is what we call first bottom land. It is below the first shelf. They do not farm that at all because of the frequency of floods. If we can get some flood control in there that 200,000 acres is just as valuable as the other 200,000 acres on the second shelf, which we think is the best land in the State of Oklahoma.

Senator ANDERSON. The project does not show anything like that amount of acreage.

Mr. MCBRIDE. No, but the point is that the flood control in this, Mr. Chairman, as Mr. Woodall said, will make possible the development from the regulated river flow pump irrigation out of the river that will be in addition to the 25,000 acres of land that we are talking about in this irrigation project simply because we will control the floods so you can maintain the ditches and pipelines.

Mr. WOODALL. I also want to say that ours is more supplemental irrigation. I say we can cover a lot more acres of ground due to the fact that we only need it in July and August. We have about a 29-inch average rainfall there. All we need to do is to supplement in order to make the crop. We spend a lot of money for preparing the ground and for fertilizer and insect control, and then don't make a crop. We have had some farmers move out of our county.

I am irrigating and the city manager of Chickasha came out last August and asked one of us to quit so they would have enough water. There is not enough water in the river at low times.

In the six counties involved in this area, there are 299,000 head of cattle. Last year the feed relief program issued 60 million pounds of purchase orders. That meant $683,000 spent for feed. The Federal Government furnished $297,000 plus of that. The 7,000 acres of irrigated alfalfa would have produced this same feed and protein instead of grain, which would have been of advantage to the farmer, rancher, and the Government.

We have two more years of additional drought. I have lived on and farmed Washita Valley land all of my life. I have irrigated several years, and have proved irrigation will be more than triple production of nonirrigated land. Irrigation to date has been on a limited

scale because pumping equipment, earthen dams and ditches are destroyed by each recurring flood.

Washita River valley land is suitable for irrigation in every respect.

1. The topography of our valley is comparatively level, with no major problems of leveling or drainage.

2. Our climate is favorable for agriculture; long growing season; not many extremes of temperature; total rainfall is adequate, but it doesn't always come when we need it. We need a way to distribute this rainfall at the proper time.

3. Our soil is a rich sandy loam suitable for either gravity or sprinkler irrigation.

4. Insects can be controlled profitably when a crop of high yield is assured by sufficient moisture.

5. Expensive commercial fertilizer can be used only when production is assured by an adequate water supply.

I assure you we farmers will make use of all of the water that is made available for irrigation by the construction of Foss and Cobb Creek Dams. We have proved to our own satisfaction in every locality that irrigation will increase yields and assure a crop. It is too expensive and hazardous, due to floods, for the average farmer to buy irrigation systems individually, and furthermore the large majority are not located near enough to the river to obtain water in this manner.

Members of this committee, we want you to realize that in the past 10 years, Oklahoma has definitely become a semiarid region. However, with the rainfall we get, the 55,800 acre-feet of water in the 2 dams will irrigate twice as many acres as it would in the arid areas, and thereby help twice as many farmers.

COMPARATIVE ADVANTAGES OF IRRIGATION

From my own experience, I am confident irrigation will pay. For example, if the three major crops, alfalfa, cotton, and wheat, were distributed equally on the 26,000 acres of our project, there would be 8,666 acres of each. The following estimate will compare the possible production with and without irrigation and the consequent results.

Crop	Acres	Production	Value
Irrigated:			
Cotton	8,666	2 bales per acre, 17,332 bales at $200	$3,466,400
Alfalfa	8,666	6 tons per acre, 51,996 tons at $30 per ton	1,559,880
Wheat	8,666	40 bushels per acre, 346,640 bushels at $2	693,280
Total			5,719,560
Nonirrigated:			
Cotton	8,666	⅓ bale per acre, 2,859 bales at $200	571,800
Alfalfa	8,666	2 tons per acre, 17,332 tons at $30	519,960
Wheat	8,666	20 bushels per acre, 173,320 bushels at $2	346,640
Total			1,438,400

The difference between the value of irrigated crops and the nonirrigated crops amounts to $4,281,160. However, there would be some added expense in irrigating and harvesting the crops which I have estimated this way.

Extra cost of insecticide, $20 per acre	$520,000
Cost of irrigating, $20 per acre	520,000
Extra cost of harvesting cotton	487,120
Extra cost of harvesting alfalfa	209,984
Extra cost of harvesting wheat	17,332
Total	1,754,436

Subtracting $1,754,436 from $4,281,160 leaves $2,526,724 net monetary gain in 26,000 acres.

I have made these estimates on the basis of three major crops. However, with irrigation some new crops will no doubt be planted, and with assured water for crop production, we farmers can more readily shift our production to meet our country's needs. In short, we could make better use of our diverted acres under our necessary farm-control program if we had irrigation.

INCREASE IN SIZE OF FARMS

The number of small farms that support families is decreasing in Oklahoma. According to the 1954 census of agriculture, United States Department of Commerce, Grady County has 698,880 acres, with 3,111 farms in 1950. In 1945 the average size farm was 188.7 acres. In 1950, the average size farm was 206 acres. In 1954 the average size farm was 220 acres. This is a 17-percent increase in 9 years. This means we are losing farm families because of our erratic rainfall pattern. Many of our farmers do not have the resources to withstand recurring droughts. Irrigation will bring stability to our area so that farm families can move back to their farms and again be self-supporting.

COTTON PRODUCTION

A report by the United States Department of Agriculture for the five counties involved in the Washita Basin Improvement Association:

	Acres	Bales
Grady:		
1952	30,500	7,300
1953	2,370	13,300
1954	2,694	8,000
Average	26,831	9,533
Caddo:		
1952	90,000	22,300
1953	69,000	38,000
1954	63,174	20,000
Average	74,058	26,766
Washita:		
1952	13,600	26,900
1953	15,000	51,000
1954	99,362	25,000
Average	42,654	34,300
Custer:		
1952	46,000	6,500
1953	31,500	8,750
1954	35,891	8,500
Average	37,797	7,916
Kiowa:		
1952	105,000	9,600
1953	70,000	19,900
1954	79,319	8,200
Average	84,773	12,566

This report shows a total of 266,113 acres of cotton in production, for a total of 91,081 bales, or about 3 acres to 1 bale. With irrigation, this could be made 2 bales to 1 acre.

DROUGHT FEED PROGRAM FOR CATTLE

The number of cattle January 1, 1955, in Washita Valley:

Grady County	77,000	Roger Mills County	47,000
Caddo County	69,000	Beckham County	33,000
Kiowa County	38,000		
Washita County	41,000	Total	299,000

Irrigation will play a major part in stabilizing the livestock industry of our area. In 6 months along the Washita there were 299,000 head of cattle as of January 1, 1955. To avoid disaster, the emergency drought feed program was established. Statistics for several counties of the area show that as of February 1, purchase orders for 60 million pounds of feed had been issued. The average cost per cow is $2.12. Thus, to provide only emergency ration to the 299,000 cattle of our valley would cost an estimated $633,880, of which the Federal Government had contributed $297,435. Only 7,325 acres of irrigated alfalfa would be required to have provided this emergency ration to the advantage of the farmer, the rancher, and our country. In addition, an acre of irrigated wheat will provide pasture for 4 head for 180 days. Alfalfa in addition to harvested hay will also afford pasture. Thus, gentlemen, we need irrigation to enable us to carry our base herds without having to worry or depend upon emergency rescues.

At Altus, Okla., on the W. C. Austin project, farmers with only limited storage capacity and the drastic water shortages of the last 2 years are riding out the drought in much better shape than their dry-farm neighbors. I know that since the beginning of irrigation, some farmers have tripled their yields, and that projectwide yields of most crops average more than double those obtained from dry farming. I am sure you can appreciate the fact that a fraction of a bale of cotton or a few bushels of grain per acre determines whether we farmers operate at a profit or suffer a loss in our farming operations. The irrigated farmers at Altus will bear me out in this as they have had 8 years' experience with irrigation, during which their crops have grossed on the average of three times the value of crops from the equivalent acreage of dry land. Cotton farmers have definitely proven these facts. Vegetable and other new crops are also being tried with success. For example, sweetpotatoes returned $500 per acre last year. Spinach, Irish potatoes, and okra are also showing promise.

We farmers affected by the Foss and Cobb Creek projects assure you that we sincerely appreciate having been given the opportunity to present our case to you for the second time. It is of utmost importance to us, and we are grateful for your consideration.

Senator ANDERSON. Mr. Mann.

STATEMENT OF EUGENE C. MANN, SECRETARY-MANAGER, HOBART CHAMBER OF COMMERCE, HOBART, OKLA.

Mr. MANN. My name is Eugene C. Mann. I represent the city of Hobart and the chamber of commerce, and the subject assigned to me is drought. Before I get into the drought I would like to show you

some pictures of the situation prevailing in 1953, and prevailing today in some of our localities. I have a written statement which is brief, Mr. Chairman.

Mr. Chairman and members of the Committee on Interior and Insular Affairs, my name is Eugene C. Mann, secretary-manager of the Hobart Chamber of Commerce, and I represent the city of Hobart, Okla., and the Hobart Chamber of Commerce. I am appearing before you today in the interest of the Foss and Cobb Creek projects in the Washita River Basin.

The economic situation in the cities and counties in the Washita River Basin adjacent to the two proposed projects is being greatly affected by the drought that has prevailed in this section of southwestern Oklahoma for the past few years. Since agriculture is the principal source of revenue the seriousness of the predicament confronting this area of Oklahoma cannot be underestimated.

During the year of 1949 the rainfall in all of the cities in the areas exceeded the normal precipitation and since that year the actual precipitation has been under normal with the exception of the year 1951. In 1952 all of the seven cities in the areas had deficiencies with the highest at Clinton and Hobart of 51 percent and 42 percent respectively. For 1953, the rainfall was under normal in five of the cities. In 1954 the actual precipitation in all of the cities was under normal with the deficiencies ranging from a low of 26 percent at Chickasha to highs of 49 percent at Hobart and Carnegie.

Bank deposits in three of the cities in the areas reflect a decrease since 1951. Sales tax collections for the fiscal year 1953–54 decreased under the collections during the fiscal year 1950–51 in 4 of the 7 cities and 4 of the 6 counties. The most pronounced increases in bank deposits and sales tax collections were at Chickasha and are largely due to the increase in oil exploration and production in that vicinity.

Crop productions have declined during the period from 1947 through 1953 due principaIly to the drought situation. The year of 1947 was the peak wheat production year during the 7-year period and since that time with a few exceptions there has been a marked decrease in the production and yield per acre in all of the counties with the exception of Caddo and Grady Counties.

Cotton production reached its peak yield per acre in 1949 in the counties of Beckham, Custer, Kiowa, and Washita and since that year there has been a progressive decrease in those counties. Production of all corn reflects a noticeable decline in the yield per acre since 1949 in all of the six counties. There has been a steady decrease in the production and yield per acre of oats since 1949 in all of the counties in the areas and this decrease is due principally to the lack of moisture. The production of sorghum for grain in the areas reached its peak in 1950 due entirely to heavy summer rains and for the three succeeding years there has been a large decrease in the production, also decreases in the yield per acre with the exception of Caddo and Grady Counties.

The estimated number of milk cows on farms as at January 1, 1947, as compared with January 1, 1954, decreased from 33 percent to 48 percent in all of the counties with the exception of Grady County. All hogs and pigs for the same period decreased from 33 percent to 68 percent in all of the six counties. The decreases in both the milk cows and hogs in most of the counties was due to the lack of pasture on account of the drought.

Supporting evidence of the facts outlined are offered in the form of exhibits which are attached to this statement and are on file with the secretary of this committee.

Another illustration of it is the cattle situation on farms, 1947 through 1954, January 1 each year. There has been a progressive decrease, particularly in the milk cows. Milk cows decreased in 1954 to 1947 in Beckham County 48 percent. I might add that these figures are from Federal statistician, K. D. Blood, at Oklahoma City. At Custer and Custer County the decrease was 42 percent. Kiowa County 48 percent. Washita County was 45 percent, and Caddo County is 33 percent.

Senator ANDERSON. Why is that so large? There has been a decrease in dairy population to some degree across the country.

Mr. MANN. Yes, sir. One of the things, of course, is due to the lack of feed.

Senator ANDERSON. It ceases to be profitable when you have to purchase all the feed.

Mr. MANN. That is right, sir.

Senator ANDERSON. How about range cattle numbers? Do you have much range cattle in there?

Mr. MANN. Yes. I don't have the percentage of range cattle. Beckham County in 1947 and 1954 are about the same. Custer County there was a decrease from 53,400 to 42,000.

Senator ANDERSON. Across the country from 1947 to 1955 there would be a decrease generally speaking.

Mr. MANN. Yes, sir. There is a decrease in the cattle in Kiowa County. There is a decrease in Washita County. But in Caddo County and Grady County, there is a slight increase.

As to hogs and pigs on the farms, we have a very progressive decrease there from 1947 through 1954. In Beckham County the decrease was 5,600 to 1,800 or 68 percent in that period of time. Custer, the decrease was 33 percent, and our county, Kiowa, the decrease was 3,300 to 1,400, or 55 percent. In Washita County the decrease was 62 percent. Caddo County was 54 percent, and Grady County was 62 percent.

I thank you for the opportunity to testify, sir.

Senator ANDERSON. Thank you. Mr. Hulin.

STATEMENT OF HOUSTON HULIN, WASHITA BASIN IMPROVEMENT ASSOCIATION, CORDELL, OKLA.

Mr. HULIN. Mr. Chairman, I am Houston Hulin, from Cordell, Washita Basin Improvement Association.

Since I am pretty centrally located between these other towns, most of my statement would be repetitious. Our need for water has not changed materially in the last 4 or 5 years, and the smaller towns around Cordell or a lot that haul their water from Cordell have not improved any. Bessie, a little town north of us about 7 or 8 miles, has 2 wells, but their water is not good to drink. It is stock water.

Southeast of Cordell is dependent on 6 wells, and their water is even harder than the water at Bessie. It is hardly good for anything.

Just south of us between Cordell and Hobart there are 2 wells that they depend on, and 1 well is fairly good water to drink, and the other is not good at all.

Cordell for several years has had a small reservoir that furnished the water, and then in the last 15 or 20 years the reservoir has silted in so that there is not a supply of water through the summer. They drilled 7 wells about 10 or 12 years ago and pumped into the reservoir. That supply was not enough, and last year or the last 3 years we have had water rationing.

Last year the bill did not pass through Congress on this project, and the city voted a $225,000 bond to drill a bunch of other test wells. Out of the 30 wells they tested, we got 7 that they thought might possibly produce. The best we have is 110 gallons a minute down to 40. They are piping there now at $225,000 to supplement the other water supply.

These wells are located 7 miles west of town in a sandy area that we do not feel there is anything certain about the water supply there because the water table has gone down a lot in the last few years.

Another thing is that the air base being reactivated there, only 10 miles from Cordell, there is a possibility that there will be a heavy increase in our town population in the next 2 years. The way our water situation is now, the water superintendent told me Friday that he was scared to death they would run out of water before they got the new line in town.

That is about all I have to say.

Senator ANDERSON. Do you have any other statement?

Mr. HULIN. Yes, sir.

Senator ANDERSON. You may read it now if you will.

Mr. HULIN. Thank you.

I represent the city of Cordell in Washita Basin Improvement Association which is sponsoring the Washita Basin project.

Mr. Albert Cornell has presented the general aspects of the municipal and industrial water supply problem, particularly for those towns included in the original plan for the Foss and Fort Cobb Reservoirs as presented in House Document 219, 83d Congress, 1st session. I would like to get down to the bare facts and tell you just how bad the municipal water supply problem is in the Bessie, Cordell, Gotebo, Rocky, and Hobart areas.

For example, take our neighbor to the north, the village of Bessie. They get their water from a couple of wells. A sample of their water, collected December 22, 1952, showed the following mineral content: Total dissolved solids, 3,060 parts per million; total hardness, 1,980 parts per million; total noncarbonate hardness 1,780 parts per million; chlorides, 68 parts per million; and sulfates, 1,790 parts per million.

Their water is so hard that it cannot be used for human consumption and is unfit for domestic and most industrial uses.

Let us just review the desirable limitations on mineral content which the United States Public Health Service has set for drinking water: Total dissolved solids, 500 parts per million; chlorides, 250 parts per million; and sulfates, 250 parts per million.

The standards state that total solids may be as great as 1,000 parts per million if water of lower mineral content is not available. Well, gentlemen, 1,000 parts per million is rainwater where we come from. The Federal drinking water standards set no limit on hardness, but the United States Geological Survey considers water with hardness of 201 to 500 parts per million is very hard. We consider that pretty good water. The limit of 250 parts per million for sulfates was

based on the fact that some people experience a laxative effect from drinking water with that much sulfate.

Take our neighbor, Gotebo, they really have a water supply. Six wells furnish water to the city of Gotebo. On September 25, 1951, their water tested as follows:

Total dissolved solids, 5,480 parts per million; total hardness 2,610 parts per million; total, noncarbonate hardness, 2,230 parts per million; chlorides, 285 parts per million; and sulfates, 2,970 parts per million.

By comparison, Bessie has pretty good water. People in these towns had a terrible time with hardness before synthetic detergents became so effective.

Rocky is a little town south of us. They obtain their water supply from two wells. They have a good well and a bad well. Neither produce water meeting Federal drinking water standards. On July 18, 1952, water from these wells tested as follows:

Total dissolved solids: for the north well, 1,100 parts per million; south well, 1,250 parts per million; total hardness: north well, 742 parts per million, south well, 617 parts per million; total noncarbonate hardness: north well, 548 parts per million; south well, 313 parts per million; chlorides: north well, 30 parts per million, south well, 198 parts per million; and sulfates: north well, 540 parts per million; south well, 235 parts per million.

That is not bad water in our country but it is not good water.

Hobart and Cordell obtain their municipal supplies in part from small surface reservoirs. These reservoirs produce very good water when it rains. However, neither Hobart nor Cordell have been able to meet their requirements from surface supplies. Unfortunately the well water was of poor quality and there was not much of that. Things got so bad they had to take the fish out of the lake to save them. Fortunately, last fall a little storm moved into their watershed and filled their lake, but it was a close call.

Cordell has depended on a little surface reservoir for a number of years. However, siltation of the reservoir and the drought have forced us to get water elsewhere. Most of our water for the last several years has come from wells which have been inadequate. Last year, after the Washita project failed to pass Congress, we voted a $225,000 bond issue to construct 8 wells about 7 or 8 miles west of town in the general vicinity of the Burns Flat Terrace. The wells are not turning out too well. The best producer to date has a yield of only 110 gallons per minute, on down to 40 gallons per minute. We question that these wells will provide a suitable long-term supply.

Unfortunately, the Burns Flat Terrace is not a large producer of water. Also, we are in competition for water with the air base in that area which is dependent upon the same supply.

Our towns cannot hope to grow with the water supplies which we now have. People are reluctant to move to towns having water supplies like ours. Certainly there is no chance for industrial expansion because of both quality and quantity limitations. Frankly, we need water fit to drink. While our primary need is for municipal and industrial water, we heartily endorse the other functions of the potential project reservoirs.

We understand that if the Washita Basin project is authorized, minor modification of the plan is possible at a nominal cost which will

permit other towns to obtain a water supply from the Foss Reservoir in addition to those cities now contained in the plan covered by the report. We sincerely hope that you gentlemen will take action to permit us to help ourselves to a better water supply.

Senator ANDERSON. Mr. Savage?

STATEMENT OF CHARLES ENGLEMAN, WASHITA BASIN IMPROVEMENT ASSOCIATION, CLINTON, OKLA.

Mr. ENGLEMAN. Mr. Chairman, I am Charles Engleman. Mr. Savage could not come here. I have a statement here for the record.

I am the editor of the Clinton Daily News, a member of the Washita Basin Improvement Association, and represent the city of Clinton in this hearing. My assignment is the discussion of the flood problems of the Washita River Basin, and the relation of the proposed Washita Basin project to those flood problems.

In the past 3 years, we have experienced severe drought conditions which have driven home to us the troubles that arise from too little water. However, we also are frequently troubled by too much water. The Washita River has a long history of destructive floods. Streamflow records show that, on the average, flood stage is exceeded 2 to 3 times each year in the portion of the valley that would be affected by the improvements under consideration at this hearing.

Some of these floods were, of course, minor, but the records show that major floods causing significantly large damages occurred in 1908, 1923, 1927, 1934, 1936, 1938, 1941, 1943, 1945, 1949, and 1951. The area subject to flooding is about 138,000 acres of land most of which is under cultivation or grazed intensively. Also included are parts of the towns of Pauls Valley, Chickasha, and Fort Cobb; and such improvements as railways and highways, bridges, municipal water supply and sewage facilities, communication and transmission lines, and oil and gas pipelines.

The annual damages due to flooding in the Washita River Basin have been estimated by the Corps of Engineers to be about $1,215,000, of which about half is agricultural damage, and the remainder to urban developments and other improvements in the flood plain.

The greatest flood of record, that of 1934, claimed the lives of 17 persons, and caused damages estimated at $3.5 million at the price levels prevailing at that time. Recurrence of the 1934 flood under present conditions would result in losses amounting to 7 or 8 million dollars.

The flood damage that has been suffered in the past has had a depressing effect upon the economy of the basin, and has been an important factor in retarding development of valley lands. The hazard of future uncontrolled floods inhibits the undertaking of more intensive agricultural operations for which these lands are well adapted, and generally precludes establishment of industrial and other improvements which would expand the economic base of the area. Along with the need for additional water supplies for municipal, industrial, and irrigation uses, there is a definite need for the control of floods in the Washita River Basin to permit the orderly development of a sound economy which will support the basin's proper share of the increased national population now in prospect.

The Washita Basin project now under consideration by this committee will provide the dominant water supply requirements of the basin, and will provide a significant degree of flood protection in the valley. The proposed Foss and Fort Cobb Reservoirs would control the maximum floods of record at their prospective locations, which means that a considerable portion of the area subject to flooding would be afforded essentially complete protection, and that severity of the flood hazard would be substantially reduced in a much greater area. In addition, these reservoirs would afford the opportunity for recreational and fish and wildlife development which is practically nonexistent under present conditions.

The economic studies of the Bureau of Reclamation show that the benefits of the project exceed the costs. I believe that the actual benefits will exceed those estimated in the Bureau studies. I am of the further opinion that the project water users will be willing to undertake repayment of the costs properly allocated to them.

Accordingly, I respectfully request that this committee take a favorable action upon the request for authorization of the Washita Basin project in accordance with the plan presented by the Bureau of Reclamation.

I do not think there is any need for a detailed schedule for flood control on these improvements. There is no new information on this angle except that the situation is the same. Of course, it is worse from the standpoint of drought in our area, but the flood control improvement is still needed very badly.

Senator ANDERSON. Do not you feel, Mr. Engleman, that when we are having areas that year by year have a great deal of trouble with their municipal water supply that it is tragic to let water run away and be wasted in floods which themselves do damage?

Mr. ENGLEMAN. I certainly do. It is very destructive.

Senator ANDERSON. It seems to me that in days like these, when we are greatly worried about our water supply, and my community is worried as your community is, it is too bad to be wasting water from the Colorado River into the Pacific Ocean, and it is too bad to be wasting water in this particular area and causing damage by flood, and being destructive to the whole area.

Thank you very much.

Mr. ENGLEMAN. I would like to make the observation, Mr. Chairman, that on the matter of allocation, we have submitted to our people out there figures according to this 1951 report, and it would be a little bit embarrassing to us out there to try to tell them that the flood control benefits would be any less than they were then or that the municipal water supply would be much more valuable than it was then.

Senator ANDERSON. We will wrestle with that problem.

Mr. ENGLEMAN. Thank you.

Senator ANDERSON. Senator Monroney, do you have a statement?

STATEMENT OF HON. MIKE MONRONEY, A UNITED STATES SENATOR FROM THE STATE OF OKLAHOMA

Senator MONRONEY. Yes, I have a statement I would like to read into the record.

In the late forties, engineering surveys and studies were undertaken by the Bureau of Reclamation looking toward improvement of the

Washita River Subbasin. As a result of these surveys and studies, a plan of improvement for the Washita River Subbasin was evolved in 1951.

In 1952 efforts were begun to secure legislation authorizing construction of the initial phase of the Washita River Basin reclamation project to furnish municipal, domestic, and industrial water, to irrigate approximately 26,000 acres of land, for flood control, fish and wildlife propagation, and recreation. This legislation had the approval of the Department of the Interior and the Bureau of the Budget.

Similar legislation was introduced in the 82d Congress, and again in the 83d Congress, as proposed by President Eisenhower in his budget message of that year. In August 1954 the legislation authorizing the Secretary of the Interior to construct, operate, and maintain the Washita River Basin reclamation project was approved by the Senate, but Congress adjourned before action could be taken by the House.

I do not wish to occupy the time of this committee with a detailed description of the Washita Basin reclamation project. Complete details of the project may be found in House Document No. 219, 83d Congress, 1st session, and in the hearings which were held before the Interior and Insular Affairs Committee of the House on March 23, 1953, and before this committee on March 24, 1953. Most of you are already very familiar with it, having considered the legislation either as a member of this committee or when it was approved by the Senate last year.

The surveys and studies which led eventually to the legislation you now have before you were prompted by the need to find a solution to the serious shortages of water for human consumption which have plagued western Oklahoma for many, many years. This problem is accentuated periodically by disastrous droughts such as the one which began some three or 4 years ago. We are still experiencing this drought period, perhaps the longest and most serious in the history of Oklahoma. Rainfall has been below normal every year since 1949, as much as 51 percent in some years.

The years that have passed since we first sought approval of this legislation have only intensified the need for the reclamation project. As you perhaps know, every county within the area to be served by this project has been designated as eligible to participate in nearly every emergency program instituted by the Federal Government.

The absence of any effective means of regulating and storing water in the Washita Basin has resulted in a decrease in the farm population of the area to be served by this project by 28.4 percent between 1940 and 1950, and has prevented industrial growth. Wheat, cotton, corn, oat, and grain sorghum production has decreased steadily since 1949. Milk cows, hogs, and pigs are down as much as 48 percent since 1949 due to lack of feed and pasturage.

Surveys indicate that there are about 140,000 acres in the Washita Basin suitable for sustained irrigation. Completion of the two reservoirs contemplated under this legislation would mean the irrigation of about 26,000 acres, or 59 percent of the acreage which could be irrigated by completion of the system of seven reservoirs which we visualize when economically feasible. Proper provision is made in the bill before you for repayment of the costs allocable to irrigation.

Municipalities in the basin have reached the limit of their growth, and development of their economic potential is contingent almost en-

tirely upon the amount of water which can be made applicable. Bank deposits and sales-tax collections in the area are declining steadily.

A dependable water supply, not only for human consumption, but for industrial use, is absolutely essential from the standpoint of health, welfare, and economic development.

During the past year or two it has been necessary to curtail essential water services in some of the larger of the 11 cities which have requested water from the 2 reservoirs. In one instance, one of the largest cities had to resort to constructing sandbag barriers across the Washita so water could be picked up by their intake pipes. Some of the smaller communities have had to haul water in by truck at a cost of $6 to $7 per 1,200 gallons.

In one community the ground water is so hard that no manufacturer of water-softening equipment has been willing to recommend his equipment after testing sample of their water. Many other instances of the problems faced by communities in finding water suitable for human consumption could be cited. Representatives of many of those communities are here today to testify, and I am confident they will point out to you their problems better than I could hope to. They know even better than I what it is like to try and find water that is fit to drink.

Another important benefit of this project would be the regulation of streamflow which fluctuates widely between drought and flood conditions. During long periods of drought the Washita is a slow, sluggish stream. Water becomes excessively mineralized and has objectionable tastes and odors. On the other hand, we experience disastrous flash floods which inundate thousands of acres of farmland, cause untold damage, and have taken as high as 17 lives at one time (1934).

Completion of this project, operating in conjunction with the waterflow retardation structures being constructed by the Soil Conservation Service, will materially reduce the tributary waterflow damages which we experience periodically.

In addition to the principal benefits of water for human and industrial consumption, irrigation and flood control, the bill also provides for the preservation and propagation of fish and wildlife, and for recreation.

You will note, however, that in its report on the bill, S. 180, the Bureau of the Budget objects to the inclusion of propagation of fish and wildlife and enhancement of recreational opportunities. While we consider both these features desirable, we consider neither essential. If you will refer to the report of this committee on a similar bill last year, the committee stated:

> The State of Oklahoma has one of the outstanding recreational and park programs in the United States.

Section 4 of the bill before you makes ample provision for cooperation between the Federal Government and the State of Oklahoma for public park and recreational facilities on lands owned by the United States. You may be sure that when these reservoirs are constructed that the State will develop suitable and adequate recreational facilities at each.

The Budget Bureau also recommends against the irrigation features, a provision contained in this bill, and a provision contained in the bill approved by this committee and the Senate during the last Congress.

Provision is made for repayment by municipal users of the costs allocable to irrigation beyond the ability of the irrigators to repay.

However, the State of Oklahoma cannot assume financial responsibility for repayment of the municipal, industrial, and domestic water supply investment that may be found to be beyond the ability of the water users to repay, as suggested by the Budget Bureau.

Article X, section 14, of the constitution of Oklahoma states:

> * * * The State shall not assume the debt of any county, municipal corporation, or political subdivision of the State, unless such debt shall have been contracted to defend itself in time of war, to repel invasion, or to suppress insurrection.

I do not doubt the ability of the water users to make full reimbursement, and neither this committee nor the Senate saw fit to impose such a requirement when this legislation was approved in 1954.

There is no question but that this legislation is vital to the rehabilitation and future progress of a large part of our State. We are asking for nothing new, nothing untried or unproved. We believe now, as we always have, that the bill before you is a good bill and that it again warrants for favorable consideration.

I would like to amplify about the Interior Department's new formula which I am afraid would make the cost of the water plus its transportation to these municipalities uneconomic and, therefore, would defeat the very purpose of this legislation; further, that the difficulties that we would experience in bringing about irrigation in this region that is so badly in need of irrigation would burden the irrigation users with costs that would be apt to put this whole project in question.

Senator ANDERSON. Senator Monroney, my great interest in not cutting down the flood-control benefits is that I like to believe this is a great flood-control project and not a municipal water-supply project. It is a substantial flood-control project that, by the statements made here, the cost of constructing the flood-control works alone would run $20,500,000.

Senator MONRONEY. That is right.

Senator ANDERSON. That being true, it does seem to me we must not lose sight of the fact that flood control is the real important factor in this whole program, and we ought not to cut it down so that somebody would pick up the figure that it is not very important, only $9 million is flood control.

Senator MONRONEY. I agree 1,000 percent. We have been troubled with floods on the Washita. The lower Washita is the most fearful valley that we have in the State of Oklahoma. We have recurrent floods, sometimes two or three a year. The damage I feel is even greater than the Army engineers have estimated. There has been constant talk of flood-control dams on this river. The costs have been far more than figured into this flood-control project.

To assess equally the cost of the byproducts of flood control in this project would defeat the very purpose of the flood control and would make the costs of flood control alone far greater to the Government. I can see no logic or reason any more to come here at this late hour and completely change the whole basic figures that have been agreed to and worked out by the Bureau of Reclamation and saying we are going to go on an entirely different system on this one project because it is the first one that comes up under this new change.

You might as well think of this project that it was an irrigation project seeking flood-control benefits in it. It does not flow that way. The original basic genesis, need, and interest of the Government is flood control. When we depart from that, you are going to get into a very serious position of having any of these municipalities or dry areas trying to figure byproducts of flood control to make usable the loss of cultivatable land and other benefits that go into a simple flood-control dam.

Therefore, I think the Government should welcome this chance to reduce its cost on flood control and the increased productivity and the human uses of water this will supply.

May I say from personal experience that we have supported numerous projects in reclamation that are on dry land that does not have population and does not have a going industry and a going economy. This we are begging and pleading to salvage and save, an area that without this help will go down to a very, very serious economic crisis. Without water for our 50,000 people in these cities that will be served, without water to hold down some of the extreme drought conditions that we have in the western part of the State, we will see this revert to near desert conditions while at the same time we are trying to improve desert conditions in other sections to attract population.

Senator ANDERSON. There has been testimony here this morning as to the great character of first bottom land that could be farmed if they were not subject to that constant hazard of flood. That is extremely important from a conservation standpoint. That is land that ought not to be lost to cultivation and ought not to be lost because of prevention of soil erosion and things of that nature. You have several hundred thousand acres of land that may be usable if the river is under control.

As Senator Monroney well knows, we completed the Conches Dam many years ago in an effort to prevent floods in Oklahoma City from the Canadian River. We have not had those floods. Whatever the cost, it was well spent. There is a slight irrigation district now connected with it, but the primary purpose of it was flood control. It accomplished what it set out to accomplish.

I am glad that the Senator from Oklahoma recognizes that this must finally be regarded as true flood-control work, not only protecting the cities along the line—and incidentally give them some water supply and other things—but making it possible to keep several hundred thousand acres of land in good shape for farming.

If you have 29 inches of rainfall a year—we get about 40 inches where I live in New Mexico, and have not even had that these last few years, much to our disgust—29 inches is pretty good rainfall. If you can keep from having floods, you could have a very fine agricultural area. I have driven many times through the area on my way back and forth.

Senator MONRONEY. We get 29 inches. The farmers say, yes, they remember the night it fell.

Senator ANDERSON. That we do not want.

Senator MONRONEY. That is right.

Senator ANDERSON. Thank you very much.

If there are no further statements, we will close the hearing and the committee will try to act.

Mr. CONELL. Mr. Chairman, we have a representative from our State representing the Governor, if we might be recognized, Mr. Husky.

Senator ANDERSON. Very well.

STATEMENT OF IRA C. HUSKY, DIRECTOR, DIVISION OF WATER RESOURCES, OKLAHOMA PLANNING AND RESOURCES BOARD

Mr. HUSKY. Mr. Chairman, I am Ira C. Husky, director of the division of Water Resources of the Oklahoma Planning and Resources Board, representing the Governor of Oklahoma and the Oklahoma Planning and Resources Board which is the State agency responsible for the review of any plan that might be worked out by the corps or any Federal agency in the State.

The purpose of my statement is to point out to the committee that Washita plan of development as provided by the Bureau of Reclamation does fit in with our plan for the States.

The water laws of Oklahoma are based upon the principle of maximum beneficial use. Our first statutes dealing with water resources and their development were adopted even before we became a State—in 1905, when the Territorial assembly recognized the importance of water development in the area that was to become the State of Oklahoma 2 years later. These laws of the Territory were carried over and adopted by the State legislature, emphasizing the principles of maximum beneficial use and the need to guard against water waste.

Our State laws, moreover, specify that—

> It shall be the duty of the Oklahoma Planning and Resources Board, and the board is hereby directed to begin the capture and impounding of flowing streams as near as practicable at the head of the stream sought to be captured * * * (82 Okla. Stat. 1951, sec. 488).

In following this policy, this office nearly 20 years ago drew up a plan of development for the Washita Basin which proposed 25 reservoirs on tributaries of the Washita River, and a dam at the Foss site on the main stem. One of the tributary dams recommended at that time was the Fort Cobb site, with the further recommendation that this be one of the first constructed. The intervening years have only intensified the need for such a program.

It is the purpose of this statement to indicate that the proposed Washita Basin projects—the Foss and Fort Cobb Reservoirs—achieve in varying degrees the objectives of Oklahoma's water policy.

The Washita River rises in the State of Texas and drains a total area of 8,047 square miles, of which 7,603 square miles are in Oklahoma comprising 12.6 percent of the State's area. The drainage basin is about 270 miles long with an average width of 30 miles, and the total length of the stream is about 650 miles.

The climate and topography of the Washita River Basin combine to present certain serious problems in water resources development. Rainfall distribution is highly erratic. Drought periods of from 3 weeks to 2 months occur during nearly every growing season and in many years may last for several months. In the Oklahoma reaches the extremes of precipitation vary from 19 to 58 inches per year, contributing in a very fundamental way to the extremes of drought and floods that recur almost every year.

Topography throughout the basin is erosional in character. Average gradient in the upper reach is about 11 feet per mile, de-

creasing downstream until the gradient between Mountain View and Davis is about 2 feet per mile. Average channel capacity above Mountain View is about 3,000 cubic feet per second; between Mountain View and Pauls Valley, about 5,000 cubic feet per second; and in the lower reaches, about 15,000 cubic feet per second. About 50 percent of the total annual flow occurs during April, May, and June, while less than 20 percent occurs during July, August, and September.

The economy of the basin is agricultural, and the average standard of living of on-farm residents is below the national average. In the 20-year period from 1930 to 1950, both the total population and the rural population of the basin has continued to decrease, while the urban populations over 5,000 have increased. Without major changes in the development of water control and storage in the basin, these trends are expected to continue.

One of the major needs of the basin—and at present the most urgent—is municipal water supplies. From the standpoint of quantity and/or quality, the water supplies of nearly every town in the basin is inadequate. Two of the larger municipalities of the basin take their water from unregulated flows of the Washita River, completely at the mercy of the erratic and poor quality streamflow. The storage facilities of another city, Clinton, are rapidly becoming inadequate to supply present requirements with no provision for future expansion. Several of the smaller towns in the basin, which normally depend upon ground water supplies, are at present hauling water in tank trucks for domestic use. The possibility of industrial growth in the basin is limited because of the inadequacies of the present municipal water supplies.

The total capacity recommended for the Fort Cobb Reservoir by the Bureau of Reclamation is 92,500 acre-feet, of which 15,000 acre-feet would be for irrigation and municipal supply purposes. However, only the last 3,500 acre-feet are specifically reserved for municipal use. The Bureau has considered an alternate plan which would develop the full potential of the site and provide an additional 20,000 acre-feet of storage (6,000 acre-feet net yield) for municipal supply.

The State heartily recommends that full development be planned and that maximum water yield be made available. This is particularly significant in light of the increasing needs for additional water supply and the effect of the current drought which makes additional storage imperative for the storage and regulation of water. Suitable reservoir sites are scarce in the basin, and we must make the fullest possible use of any structures built. The larger Fort Cobb storage would assure the cities of Anadarko and Chickasha an adequate supply of good water for a greater population than is anticipated for the next 50 years, and in addition supply other towns and industrial users in the area.

The Bureau's plan as reviewed by the State indicates that the Foss Reservoir would provide storage for 50,000 acre-feet for irrigation and water-supply purposes, with the last 5,700 acre-feet of this capacity reserved for municipal use. Under a State policy that gives preference to domestic and municipal water uses, the water requirements of the towns in the basin could be adequately met for a period of at least 50 years.

The quality of water from the Fort Cobb Reservoir would be well within the limits recommended by the Public Health Service and a vast

improvement in the quality of the present supply of municipalities in the area. The Foss Reservoir would provide water of desirable quality, although sulfates which make up a large part of the hardness content of 383 parts per million, would require treatment.

Recent basinwide surveys in which the State has been a participant indicate that there are about 140,000 acres of lands suitable for sustained irrigated agriculture in the Washita Basin. These lands are confined to the valley and terrace lands along the main stem and major tributaries, and the present limiting factor is the availability of water. According to information presented in House Document 219, 83d Congress, 1st session, the Foss project would supply water for the irrigation of 9,440 acres through canals and laterals, and reservoir releases would furnish a water supply for an additional 7,260 acres located downstream in the Fort Cobb project. The Fort Cobb Reservoir mould provide water to irrigate about 9,000 acres. The two projects together would provide enough water in addition to other uses to irrigate a total of 25,700 acres, or 59 percent of the acreage which could be irrigated by the combined proposed system of 7 reservoirs.

Since initial review of the Bureau's plan of development, several additional towns in the area have requested that water supplies from the two projects be considered for their municipal use. The Bureau, following recent preliminary studies, says that the inclusion of the additional municipal water supplies and provision of more water for municipal and industrial uses included in the plan, will require an adjustment in the irrigated acreage.

The State feels that the establishment of sound irrigation practices in the basin in accordance with the desires of the local people will be fundamental in the improvement of the basin's economy. However, under State policy, municipal water needs have higher priority, and cities offering to participate in the plan and contract for water should be given an opportunity to do so, and the irrigated acreage should be adjusted in the final plan developed to permit the satisfaction of higher beneficial uses where practicable.

Releases of water from the two structures would also regulate streamflow to the advantage of current irrigators who are now irrigating more than 3,300 acres from an individual privately owned pumpign units direct from the Washita River. These releases, plus return flows from irrigated project lands, would also materially benefit fish life, fish propagation, and wildlife associated with the stream.

Floods in the Washita Basin are generally of a "flashy" nature, and seldom occur in the entire basin simultaneously. While the floods may be of a local nature, they have been known to wreak tremendous damage. One of the largest storms of record in the valley was the flood of 1934 which took 17 lives and caused direct and indirect damages totaling about $3 million (1934 prices). Confined to an area 18 miles wide as it crossed the basin at a point where it is about 50 miles across, the storm dumped more than 20 incres of rain in a few hours. Nearly 83,000 acres were inundated, and the peak discharge of main stem and tributary flows combined was 167,290 cubic feet per second.

Another and more recent flood in the Washita Basin was that of 1949, when the peak discharge at the Carnegie gaging station exceeded capacity 10 times, and the Soil Conservation Service reported 770,000 acres damaged by floodwaters and erosion. Again in May 1954, a flood originated in the upper reaches of the Washita Basin above Foss dam

site and caused considerable flooding and damage for some distance downstream. Average annual experienced flood losses (including sediment damages) on the main stem of the Washita River amount to $1,117,220 a year, with another $4,048,930 in yearly damages on the tributaries to make a total of $5,166,150 annual damages in Oklahoma's portion of the stream system.

The waterflow retardation structures and floodways being constructed by the Soil Conservation Service will, when completed, reduce present tributary floodwater damages approximately 51 percent. The Bureau of Reclamation's report indicates that the Foss and Fort Cobb Reservoirs, when completed, will reduce present annual flood damages by $313,400 and $118,400 respectively, in addition to their other benefits. These flood-control benefits computed by the Bureau of Reclamation will probably be adjusted slightly downward in the process of coordinating the flood-control efforts of the Department of Agriculture with those of the plan proposed in the Bureau's report.

However, the flood-control benefits assigned to the Foss and Fort Cobb projects are those considered to result when the two structures are operated as units in a seven-reservoir plan of development. The operation of Foss and Fort Cobb projects without the other five will result in an increase of the respective flood control benefits of 35 percent. Inasmuch as the construction of the other five reservoirs at the present time is not economical, the State feels that Foss and Fort Cobb will play an important part in the control of floodwaters in the basin.

The game and fish resources in the area would be benefited by the developments proposed by the Bureau of Reclamation. Indications are that recreational benefits will be much more than of local nature, since the lakes would draw many out-of-State visitors and sportsmen. The costs allocated to preservation and propagation of fish and wildlife are not reimbursable and under Public Law 732, 79th Congress, 2d session, are to be borne by the Federal Government. The effects of flood control in the downstream reaches are also beneficial to fish and wildlife, and would result in conditions more favorable to these resources.

Soil erosion and resulting sedimentation of the Washita River and its major tributaries are serious problems in the basin. One single flood (May 1949) was reported by the Soil Conservation Service to have caused soil losses amounting to more than $7 million. The sediment sampling station at Carnegie showed that a million and a half tons of suspended sediment passed that point during the month of the 1949 flood. Since the State prepared its first report on the Washita in 1936 channel deterioration and deposition of sediment has continually increased, and, unless checked by extensive soil conservation and all other possible means, threatens in time to destroy the valley.

While the State does not advocate the construction of reservoirs for the purpose of storing silt, the two proposed structures will benefit the stream from this viewpoint and at the same time provide a regulated streamflow that aids the maintenance of a clean channel. The Bureau of Reclamation, in view of the present program of the Soil Conservation Service, expects the 2 structures to operate at least 100 years before sedimentation begins to encroach upon storage allocated to beneficial uses. The State recognizes the great value of soil-conservation measures and urges their expansion.

One of the great benefits of regulated streamflow in the western and central areas of Oklahoma are those realized through the dilution of both natural and manmade pollution. Operating procedures at the Foss and Fort Cobb structures are not yet definite but because of pollution present in the stream, particularly during low-flow periods, minimum releases are desirable. Return flows from irrigated project lands, estimated by the Bureau of Reclamation to amount to something like 30 percent of the diverted waters, will be of benefit in alleviating pollution. The State suggests that once the projects are in operation, studies of the quality of return flows by the operating agency would be extremely helpful in planning future water resources development in this and other States.

Water rights for beneficial uses in or through the operation of projects or structures constructed by agencies of the United States Government are protected and administered in a manner similar to all other water rights in Oklahoma. In addition, the statutes specifically state that:

> Whenever the proper officers of the United States, authorized by law to construct works for the utilization of waters within the State, shall notify the Oklahoma Planning and Resources Board that the United States intends to utilize certain specified waters, the waters so described, and unappropriated at the date of such notice, shall not be subject to further appropriation under the laws of this State, for a period of 3 years from the date of said notice, at which time the proper officers of the United States shall file plans for the proposed works in the office of the planning and resources board for his information, and no adverse claim to the use of the waters required in connection with such plans * * * shall be recognized under the laws of the State * * * (82 Okla. Stat. 1951, Sec. 91).

Water rights are granted in Oklahoma subsequent to adjudication by district court. While adjudication has not yet taken place on the Washita River, water rights covering the beneficial use of water by the two proposed projects will take their place in the ranks of other vested rights when such adjudication is accomplished.

Since the State of Oklahoma has reviewed the report of the Secretary of the Interior on the Washita Basin project and approved the proposed plan of improvement involving the Foss and Fort Cobb Reservoirs and related works, the planning and resources board is now withholding the waters of the Washita River and tributaries above Chickasha from further appropriation and reserving such withdrawn waters for beneficial use through development of the Washita Basin project. Continued reservation of waters for the project is contingent upon project development within a reasonable period of time.

In summary, the two projects recommended by the Bureau of Reclamation appear to be compatible with the water policy of the State of Oklahoma, and appear further to satisfy certain vital and fundamental needs of the basin as hereinbefore described. The satisfaction of these physical needs for municipal and irrigation water supplies, flood control, and other incidental features will mean an improvement in the economy of the basin with its favorable effect on the economy and welfare of the State and the Nation. This, we believe, is the goal and purpose of good government.

I picked up a paper yesterday morning as I was getting ready to come up, and the headline was, "The Year's Worst Dust Hits State; Visibility Zero in the Northwest." It mentions some of that dust

comes from your good State of New Mexico, Colorado, and the like. I believe unless there are some questions, that is all I have.

Senator ANDERSON. Thank you very much.

We will close the hearing, as I said, and the committee will act upon the bill as early as it can.

(Whereupon, at 11 : 55 a. m. the hearing was concluded.)

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